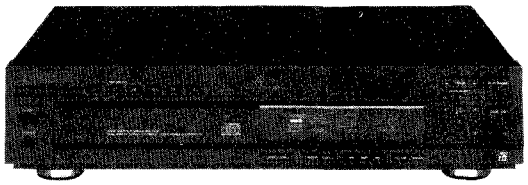
Compact disc player CDC586/00R/05R/07R

Service
Service
Service



44 505 A11

The remote control is available under codenumber 4822 218 10234

Service Manual

COMPACT disc DIGITAL AUDIO

CONTENTS

1 Contents and Control Buttons
2 Technical data
3 Servicing hints, loading and cabinet parts
4 Electrical measurements and adjustments
5 Block diagram, wiring diagram, circuit diagrams, panel data
6 Electrical partslist

(GB)
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(NL)
Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)
Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambio identici a quelli specificati.

(F)
Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

CLASS 1
LASER PRODUCT
3122 110 03420

Documentation Technique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Servicio

PHILIPS

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne".

Subject to modification
4822 725 22292
Printed in The Netherlands

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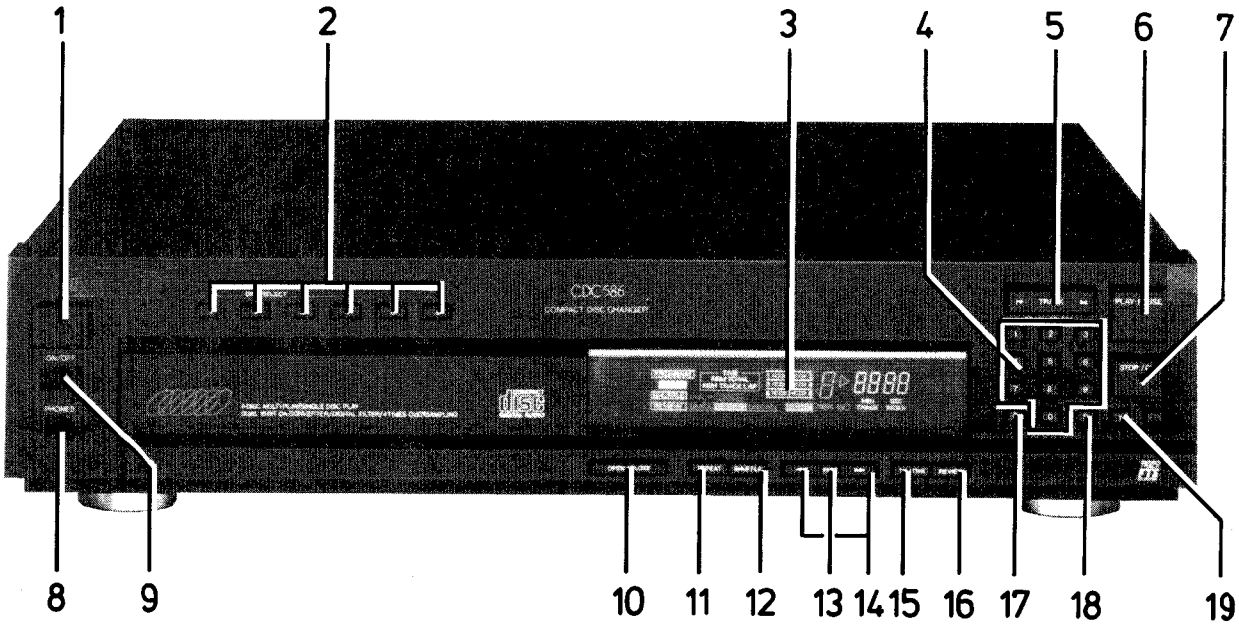
PHILIPS

Published by Service Consumer Electronics
CS 19 919

CONTROL BUTTONS



Front of player

1 Power ON/OFF
2 Disc select
3 Display
4 1 – 0 digit
5 ⏮ prev. TRACK next ⏭
6 Play/Pause
7 Stop/CM
8 IR eye
9 Phones
10 Open/Close
11 Repeat
12 Shuffle
13 Fast-Search
14 ◀◀ SEARCH ▶▶ keys
15 Track/Time
16 Review
17 Clear
18 Store
19 FTS

Rear of player

a RC 5
c Analogue out

TECHNICAL DATA

Typical Audio Performance

- Number of Channels : 2
- Frequency Range : 20-20 000 Hz
- Output resistance : 200 Ω
- Amplitude Linearity : ± 0,1 dB (20-20 000 Hz)
- Dynamic Range : 90 dB (20-20 000 Hz)
- Signal-to-Noise Ratio : 96 dB (20-20 000 Hz)
- Channel Separation : 93 dB (20-20 000 Hz)
- Total Harmonic Distortion : min – 90 dB (20-20 000 Hz)
- Wow and Flutter : quartz crystal precision
- Error Correction System : Cross Interleaved Reed Solomon Code (CIRC)
- Audio Output Level : 2 V_{rms} ± 2 dB
- Unbalance left right : max. ± 0.2 dB
- Phase non-linearity : max. ± 1.0° (20-2000Hz)
- Automatic switched de-emphasis : (15/50 µS)

Optical Readout System

- Laser : semi-conductor AlGaAs
- Wavelength : 780 nm

Signal Format

- Sampling Frequency : 44.1 kHz
- Quantization : 16 bit linear/channel

Headphone

1. Output voltage : Max. 2 Vrms ± 2 dB
2. Unbalance Left–Right : Max. +/- 0.5 dB
3. Output resistance : 150 Ω
4. Load impedance range : 32 Ω to 600 Ω
5. Output power : Max. 6 mW into 32 Ω load
   Max. 10 mW into 150 Ω load
   Max. 6 mW into 600 Ω load
6. Amplitude linearity : Max. +/- 0.1 dB from 20 Hz to 20 KHz into 600 Ω
7. Phase non-linearity : Max. +/- 1° from 20 Hz to 20 KHz into 600 Ω
8. Signal to noise ratio : min 90 dB from 20 Hz to 20 KHz into 600 Ω
9. Dynamic range : min 90 dB from 20 Hz to 20 KHz into 600 Ω
10. Total harmonic distortion + noise : Max. 0.005% (min-90 dB) from 20 Hz to 20 KHz into 600 Ω
11. Intermodulation distortion : Max. 0.005% (min-90 dB) from 20 Hz to 20 KHz
12. Channel separation : min 65 dB from 20 Hz to 20 KHz into 600 Ω

Digital output

- Output level : 0.5 V (peak to peak) +/- 20% into 75 Ω load
- DC-output : +/- 0.05 V maximum

Power Supply

- Mains Voltage : see type plate at rear of player
- Mains Frequencies : 50 and 60 Hz
- Power Consumption : 20 W approx.
- Safety Requirements : IEC

Cabinet, general

- Dimensions (w x h x d) : 420 x 113 x 340 mm
- Weight : 6.5 kg approx.

The right is reserved to change data if necessary

This Compact Disc player complies with the radio interference requirements as laid down in EEC (European Economic Community) regulations.

SERVICING HINTS

In the set chip components have been applied.
For disassembly and assembly of chip components see the figure below.

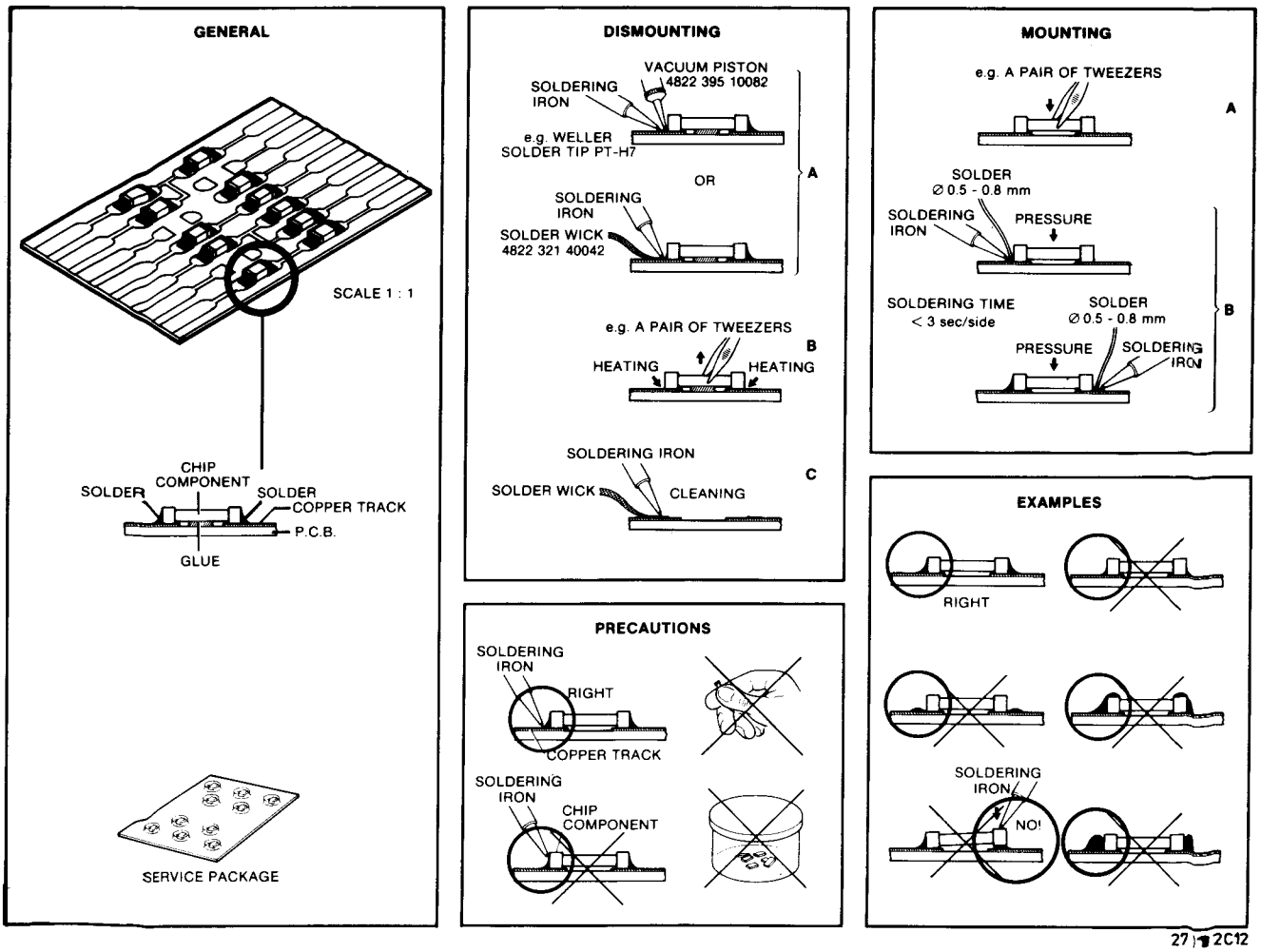
The disc should always rest properly on the turntable. To achieve this a disc hold–down has been mounted in a bracket of the tray mechanism.

Test discs

It is important to treat the test discs with great care. The disorders on the discs (black spots, fingerprints, etc.) are exclusive and unambiguously positioned. Damage may cause additional drop-outs etc. rendering the intentional errors no longer exclusive. In that case it will no longer be possible to check e.g. the good working of the track detectors.

SERVICE TOOLS

Disc without errors (5)+ disc with DO errors, black spots and fingerprints (5A)	4822 397 30096
Disc 65 min 1kHz without pause	4822 397 30155
Torx screwdrivers	
Set (straight)	4822 395 50145
Set (square)	4822 395 50132
13th order filter	4822 395 30204
Service cable (5p)	4822 321 21273
Service cable (14p)	4822 321 21598
Service flexfoil (14p)	4822 322 40066
Service connector (14p)	4822 267 50676
Glass disc	4822 395 90204
Audio signals disc 1	4822 397 30185

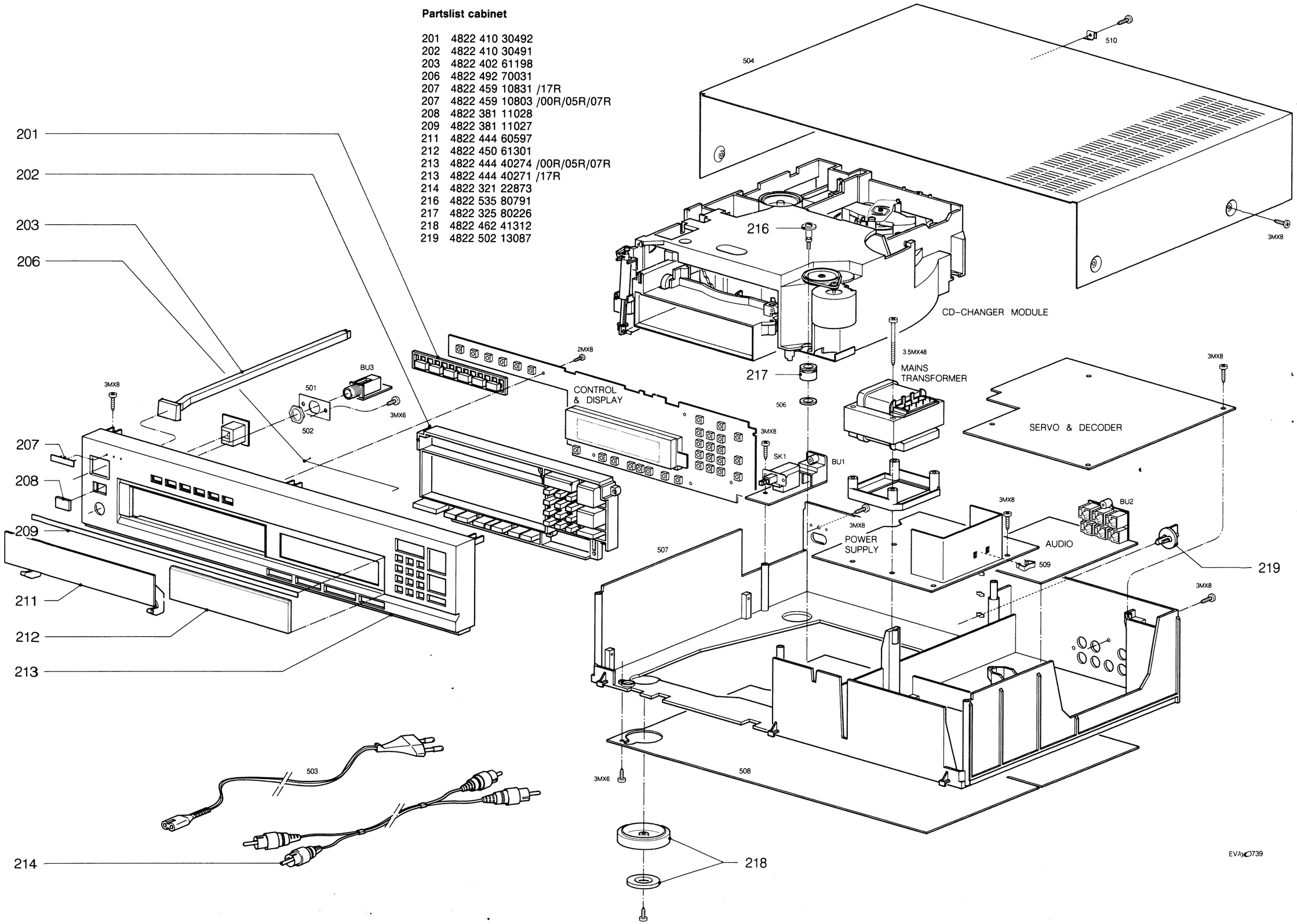


27 2C12

EXPLODED VIEW CABINET AND DISASSEMBLY

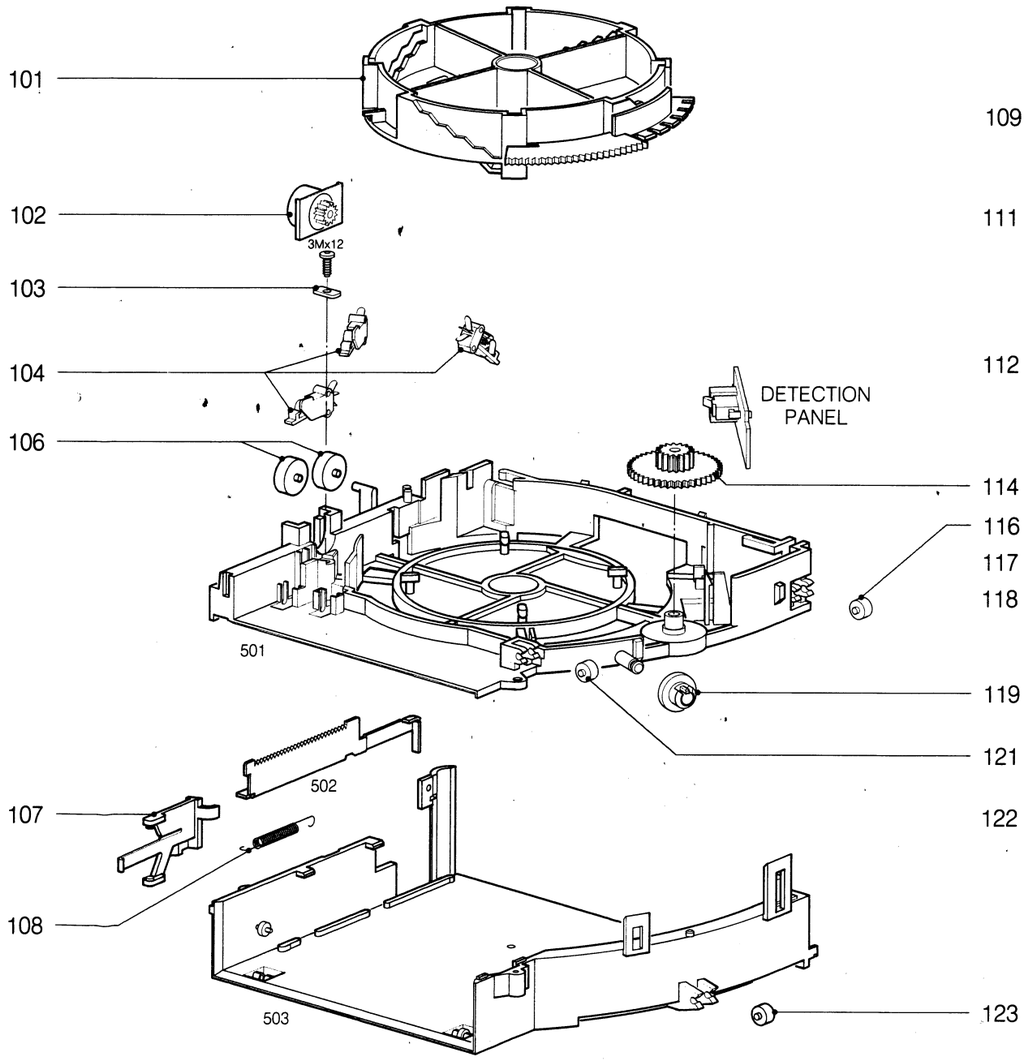
Partslist cabinet

201	4822 410 30492
202	4822 410 30491
203	4822 402 61198
206	4822 492 70031
207	4822 459 10831 /17R
207	4822 459 10803 /00R/05R/07R
208	4822 381 11028
209	4822 381 11027
211	4822 444 60597
212	4822 450 61301
213	4822 444 40274 /00R/05R/07R
213	4822 444 40271 /17R
214	4822 321 22873
216	4822 535 80791
217	4822 325 80226
218	4822 462 41312
219	4822 502 13087



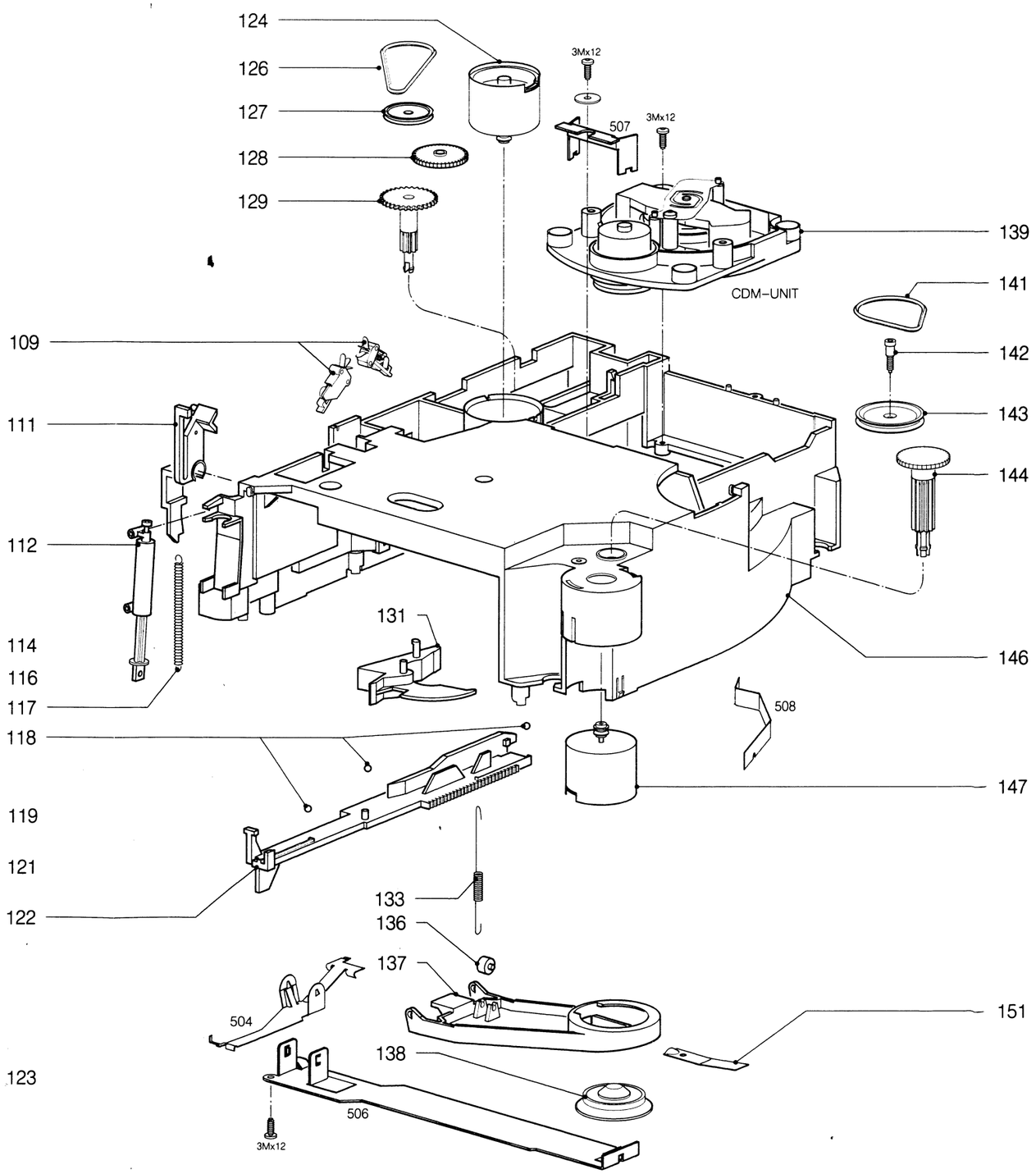
Partslist changermodule

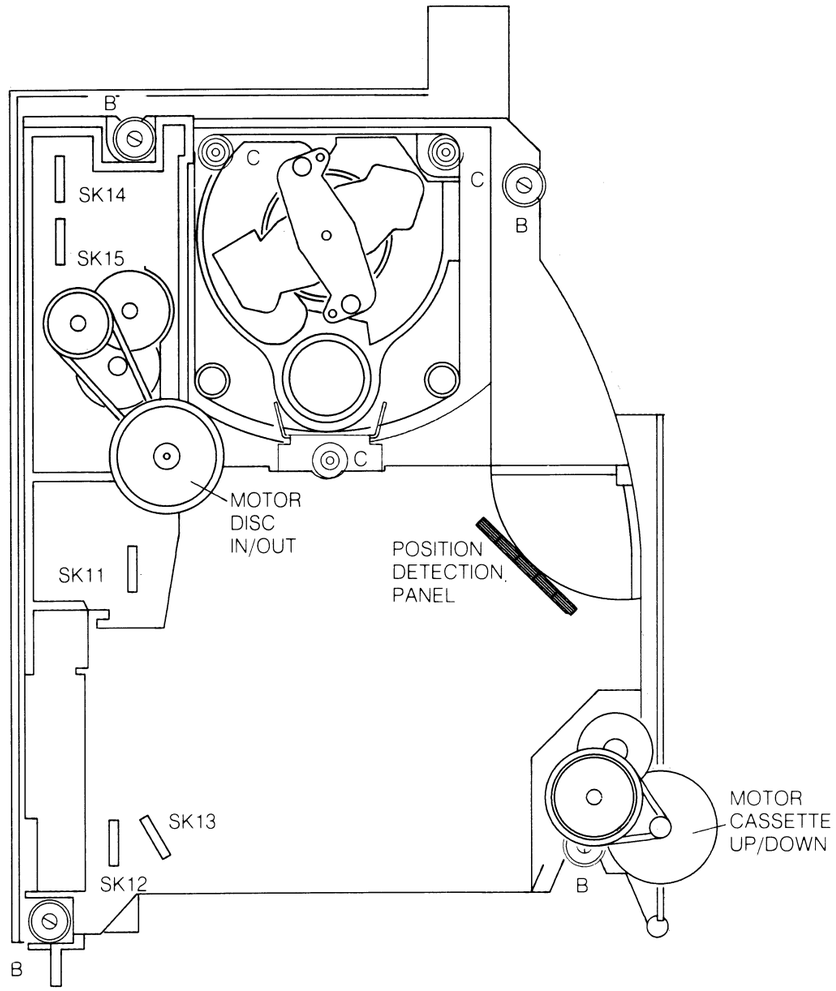
101	4822 528 10741	121	4822 528 90639	142	4822 535 80788
102	4822 529 10213	122	4822 535 80787	143	4822 528 81231
103	4822 466 80671	123	4822 528 90639	144	4822 522 32479
104	4822 271 30628	124	4822 361 21141	145	4822 520 10665
106	4822 528 90638	126	4822 358 30852	146	4822 361 20998
107	4822 402 61212	127	4822 528 81232	147	4822 325 60317
108	4822 492 32888	128	4822 522 32482	151	4822 492 70033
109	4822 271 30628	129	4822 522 32481		
111	4822 402 61211	131	4822 402 61208		
112	4822 529 10214	133	4822 492 32887		
114	4822 522 32478	136	4822 528 90639		
116	4822 528 90639	137	4822 466 92264		
117	4822 492 32889	138	4822 532 61112		
118	4822 520 40241	139	4822 691 30215		
119	4822 528 70539	141	4822 358 30853		



EXPLODED VIEW

CD–CHANGER MODULE

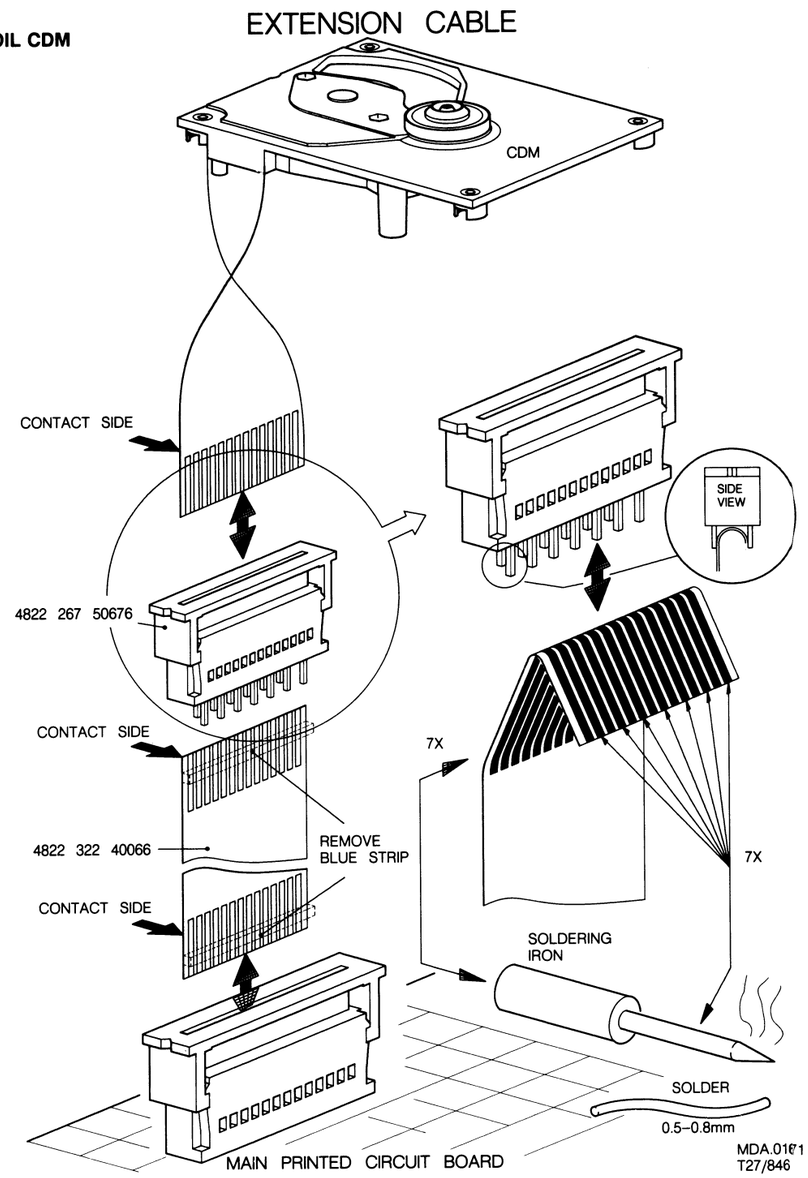


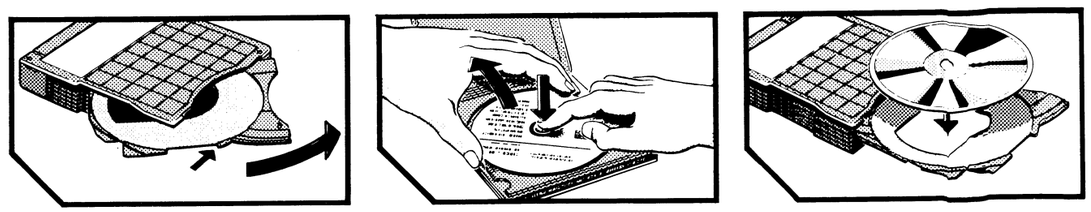


C-SCREWS FOR (DE)MOUNTING THE CDM
B-SCREWS FOR (DE)MOUNTING THE LOADING

MDA 01442
825/T27

DEMOUNTING FOIL CDM





44 067 A11

DISASSEMBLY OF THE CHANGERMODULE

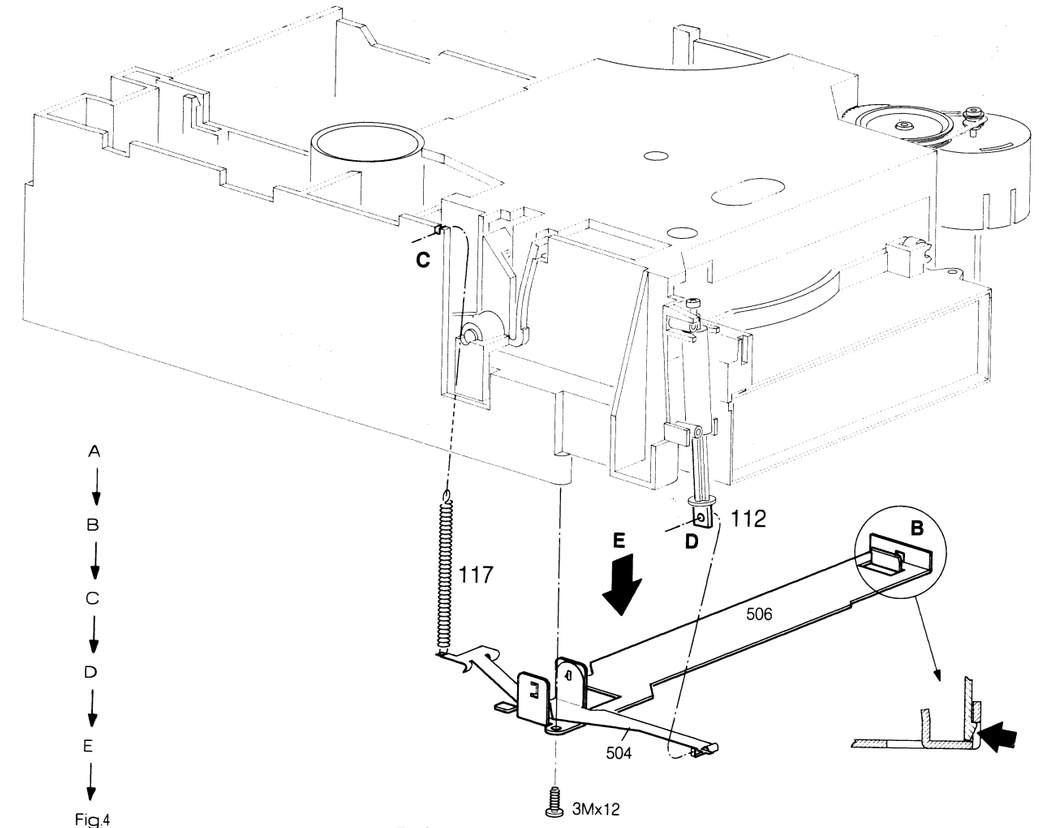


Fig.3

EVA.00615
823/T19

A → B → C → D → E → Fig.4

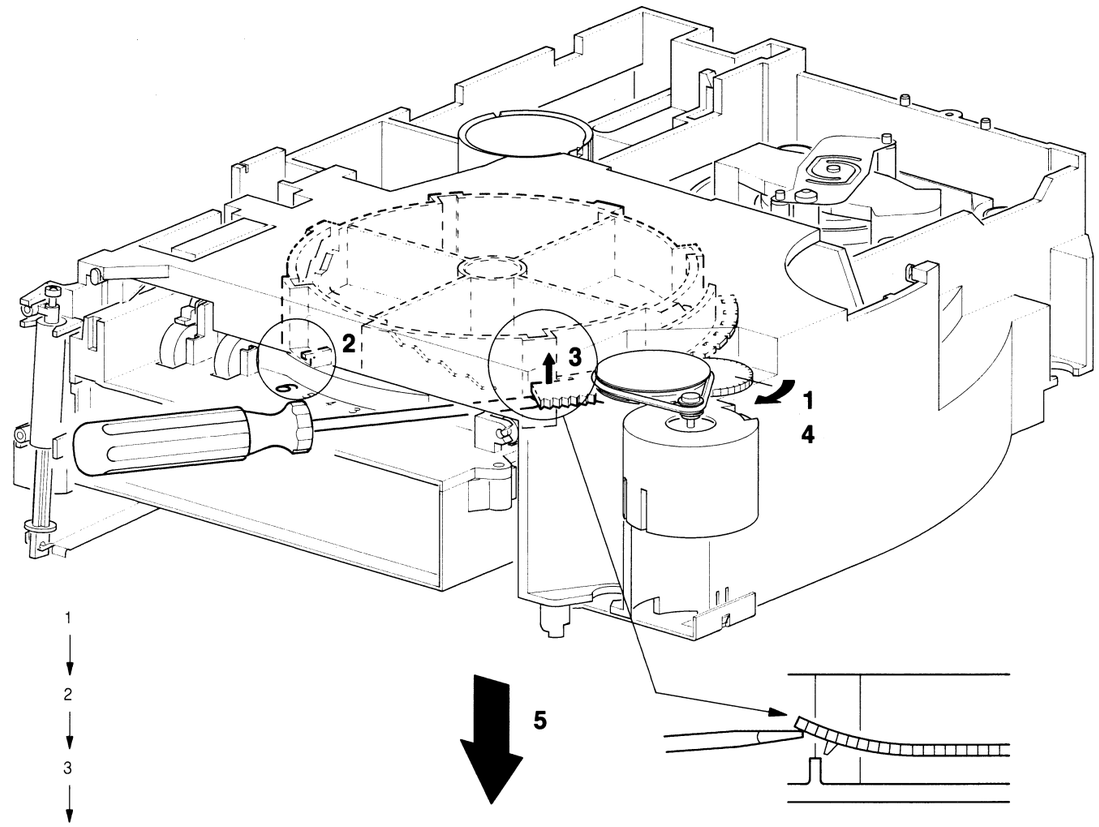


Fig.4

EVA.00614
822/T19

1 → 2 → 3 → 4 → 5 → Fig.5

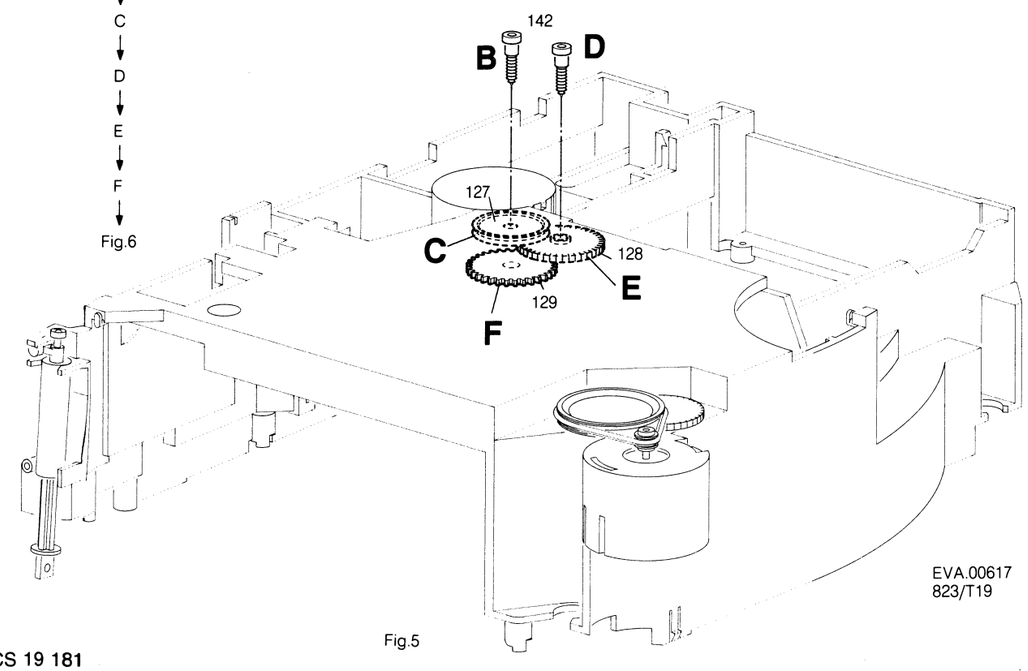


Fig.5

EVA.00617
823/T19

A → B → C → D → E → F → Fig.6

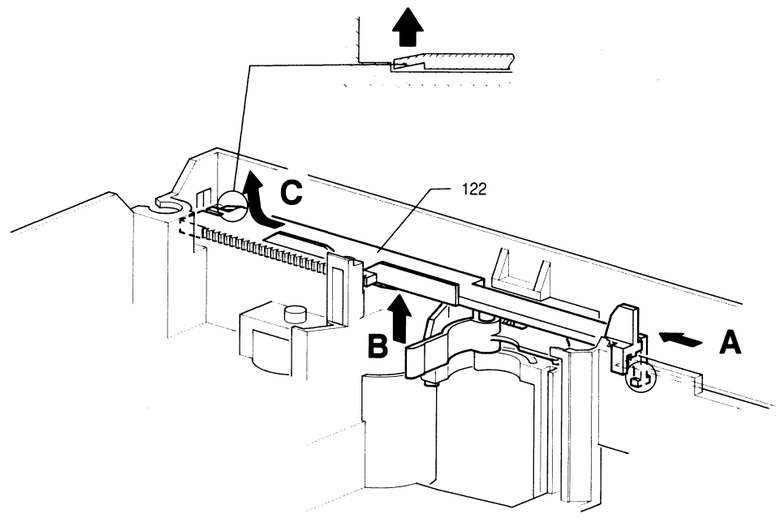
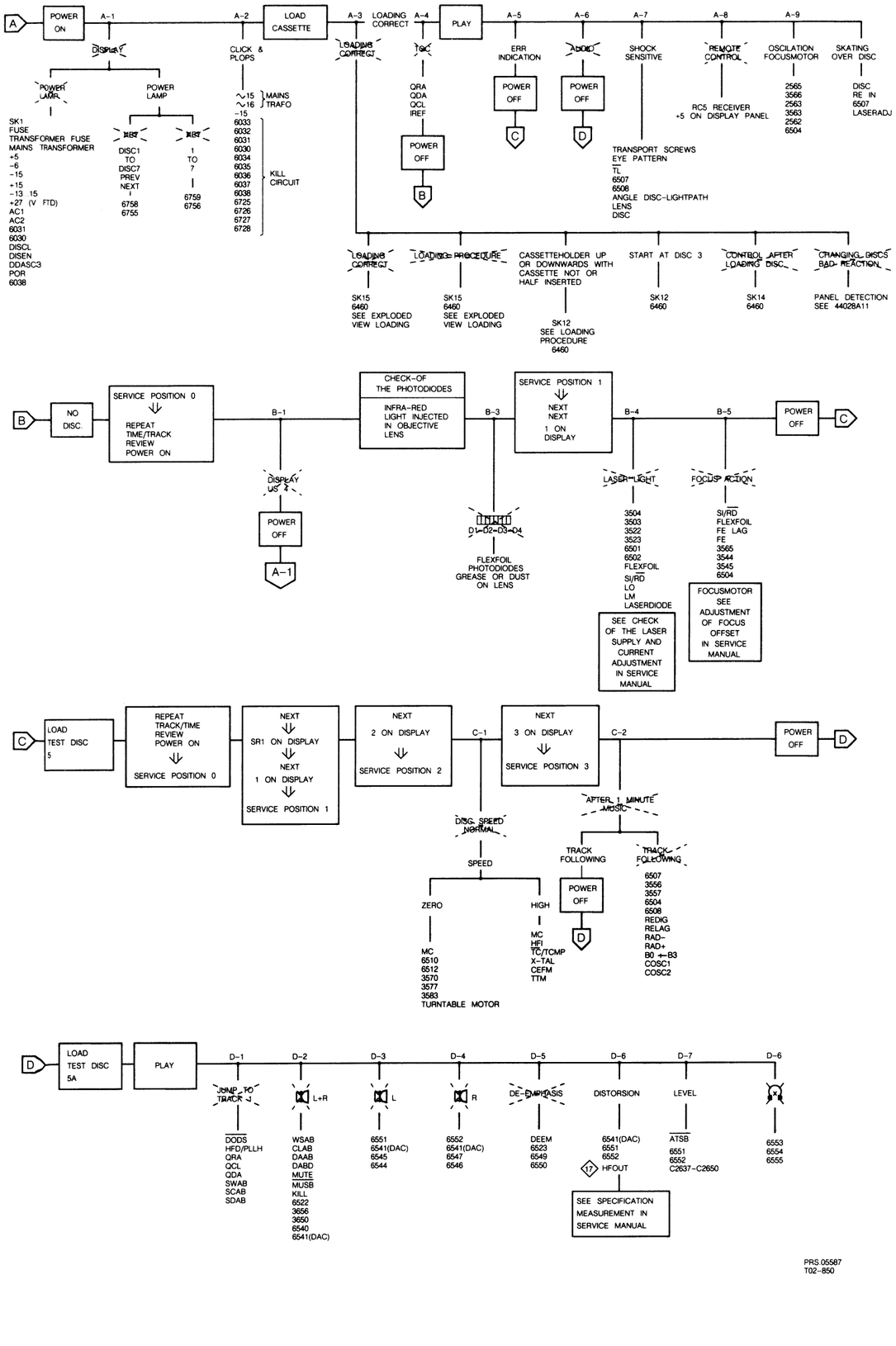


Fig.6

EVA.00618
823/T19

A → B → C

ELECTRICAL MEASUREMENTS AND ADJUSTMENTS



µP - SIGNALS 6517

Signal	Mode	◇			Remarks
Reset	Power on	100		Puls "high"	
X-TAL	Stand-by	101		10 MHz	
$\overline{MUTE}$	Stand-by	67		"low"	
I²D		53		0,5 mS	activity when power on except: high when starting up/ low when stopping
I²C		54		0,5 mS	

T-22255A

µP - SIGNALS 6460

Signal	Mode	◇			Remarks
Reset	Power on	52		Puls "high"	
T1	Cassette position 1 to 6	51		high	When cassette on correct position
X-TAL		50		sinus	See frequency on X-TAL
I²D		53		0,5 mS	activity when power on except: high when starting up/ low when stopping
I²C		54		0,5 mS	

T-22255B

B0÷B3 SIGNALS

Signal	Mode	◇			Remarks
B0	Service position 1 or 2 or 3; search ≫	36		"low"	
	Service position 1 or 2 or 3; search ≪	36		"low"	
B1	Service position 1 or 2 or 3; search ≫	34		"high"	
	Service position 1 or 2 or 3; search ≪	34		"low"	
B2	Service position 1 or 2 or 3; search ≫	33		"low"	
	Service position 1 or 2 or 3; search ≪	33		"high"	
B3	Service position 1 or 2 or 3; search ≫	32		"high"	
	Service position 1 or 2 or 3; search ≪	32		"high"	

T-22255C

B3
CHECK OF THE PHOTODIODES

Step	Signal	Mode	◇	∅	▭	⊓	Remarks
1	–	power on	◇4 ⊓ ◇6 ⊓ ◇7 ⊓ ◇8 ⊓	–	–	See drawing 38314A12	*1 Signal depends on Distance lens ↔ IR LED of remote control

*1 Inject light of infra-red remote control in optical pick-up

T-22255D

B4
CHECK OF LASER SUPPLY WITH DEMOUNTED CDM AND ADDITIONAL CIRCUIT

Step	Signal	Mode	◇	∅	▭	⊓	Remarks*
1	LO	serv. pos. 2	◇9 Ⓥ	–	1.8<V <2.3	–	See drawing 42444 A12 *2
	LM		◇11 Ⓥ	–	170<mV <220	–	
2	LO	serv. pos. 2	◇9 Ⓥ	–	1.8<V <2.3	–	
	LM		◇11 Ⓥ	–	170<mV <220	–	

*2 During the change over from SK closed to SK open, the led will emit more light for a short moment

T-22255E

B4
LASER CURRENT ADJUSTMENT

Step	Signal	Mode	◇	∅	▭	⊓	Remarks
1	–	Power off	◇11 Ⓡ	R3520	1kΩ	–	Pre-adjustment Ohmic value
2	Eye-pattern HF	Test disc 5 play	◇17 ⊓	–	–	Drawing 37017B8	IF no signal see "start up procedure"
3	laser current ≙ voltage across R3501	test disc 5 play track 1	◇1 Ⓥ ◇2	R3520	50 mV DC	–	High ohmic measurement

T-22255F

ADJUSTMENT OF FOCUS-OFFSET

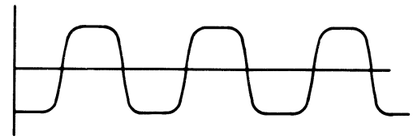
Step	Signal	Mode	◇	∅	▭	⊓	Remarks
1	–	Power on	–	R3569	–	–	adjust for optical mid-position
2	FE LAG	Service pos "2" test disc 5 play	27	R3569	400mV ± 40 mV DC	–	fine adjustment

T-22255G

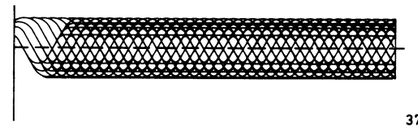
B5
FOCUS ACTION

Signal	Mode	◇	▭	⊓	Remarks
SI/$\overline{RD}$	Service position 1 when repeating start up procedure (no disc inserted)	21		puls "low"	See drawing MDA.01403 no disc
FE	Test disc 5A, service position 1 when repeating start up procedure	26			See drawing MDA.01413
FE-LAG	Test disc 5A	27			See adjustment of focus-offset

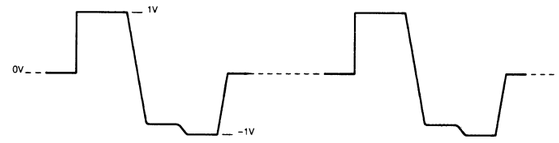
T-22255H



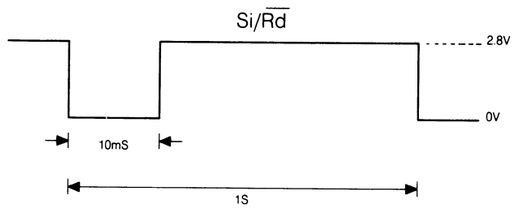
38 314 A12



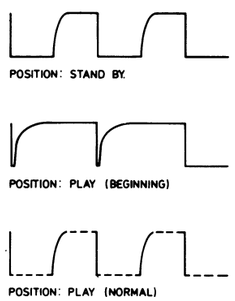
37 017 B8



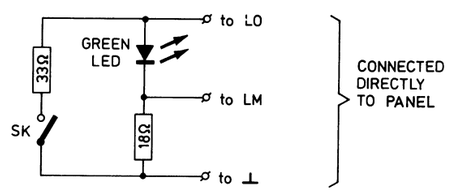
MDA.01413
T33/823



MDA.01403
T33/821



38 849 A12



42 444 A12

C1
HIGH SPEED DISC ROTATION

Signal	Mode	◇	🔧	📊	Remarks
MC	Test disc 5, play or service position 2	81			See drawing 38849A12
TCMP	Test disc 5, play or service position 2	14	+5 V		After 4 $\overline{TL}$ Pulses
HFI	Test disc 5, play or service position 2	65		± 1,5 Vpp	See drawing 37017B8
X-tal	Test disc 5A, play or service position 2	69		11.28 MHz	
$\overline{TL}$	Test disc 5, play or service position 2	13		pulses "low"	*
TTM–	Test disc 5A, play or service position 2	16	Approx –1 V		

T-22255I

C2
TRACK FOLLOWING

Signal	Mode	◇	🔧	📊	Remarks
RE dig	Test disc 5, play or service position 3	37			
RE lag	Test disc 5, play or service position 3	41	approx 2.5 V DC		
RAD–	Test disc 5A, play or service position 3	42			
RAD+	Test disc 5A, play or service position 3	40			
C osc1	Test disc 5, play or service position 3	30		650 Hz	
C osc2	Test disc 5, play or service position 3	31		650 Hz	
RE1	Test disc 5, service position 2	18		2 ms/div	See drawing
RE2	Test disc 5, service position 2	22		2 ms/div	30743 B12

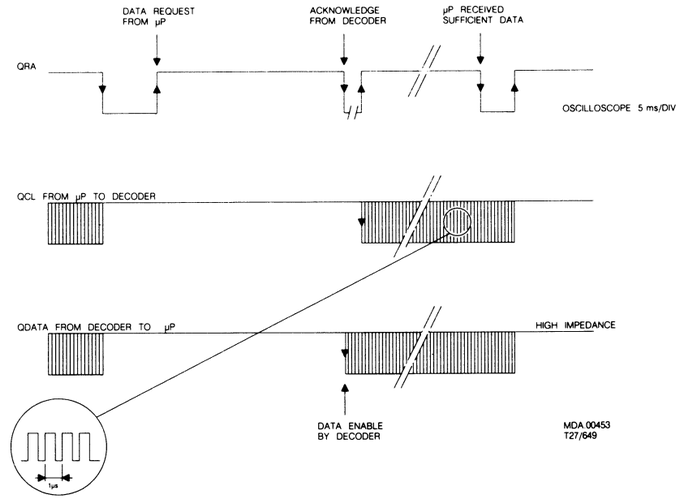
T-22255J

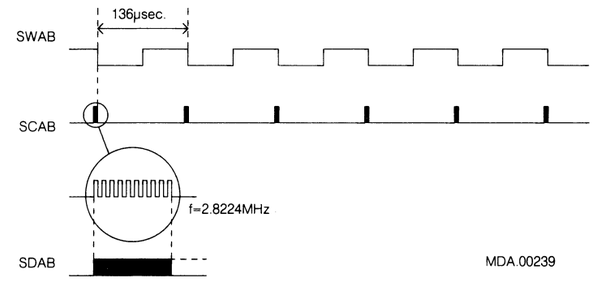
*When slightly bumped against the CDM

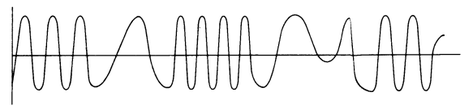
D1
JUMP TO TRACK 1

Signal	Mode	◇	🔧	📊	Remarks
$\overline{DODS}$	Test disc 5A search ≫ or search ≪	19			See drawing MDA.01143
HFD/$\overline{PLLH}$	Test disc 5A, track 15, play	23		pulses "low"	See drawing MDA.00240 when the disc is slowly braked by hand
QRA	Test disc 5A, play	75			} See drawing MDA.00453
QDA	Test disc 5A, play	77			
QCL	Test disc 5A, play	76			
SWAB	Test disc 5A, play	78			See drawing MDA.00239
SCAB	Test disc 5A, play	79			See drawing MDA.00239
SDAB	Test disc 5A, play	80			See drawing MDA.00239

T-22255K







DECODER

Signal	Mode	◇			Remarks
CEFM	Disc, play	68		4.32 MHz	
X-IN	Disc, play	69		11.28 MHz	
WSAD	Disc, play	71			See drawing 38847C12
CLAD	Disc, play	72			See drawing 38847C12
DAAD	Disc, play	73		activity	See drawing 38847C12
EFAB	Testdisc 5A, play	74		pulses	When the disc is slowly braked by hand
SWAB	Disc, play	78			See drawing MDA.00239
SCAB	Disc, play	79			See drawing MDA.00239
SDAB	Disc, play	80			See drawing MDA.00239
DEEM	Testdisc 5, play TRACK 14: PLAY TRACK 15: PLAY	84		"low" "high"	

T-22255L

DAC IC

Signal	Mode	◇			Remarks
Output of OP-AMP	Disc, play	94		LF signal	Left channel
Output of OP-AMP	Disc, play	95		LF signal	Right channel
DABD	Disc, play	86		activity	
CLBD	Disc, play	87			See drawing 38848C12
WSBD	Disc, play	85			

T-22255M

D5
DEEM CIRCUIT

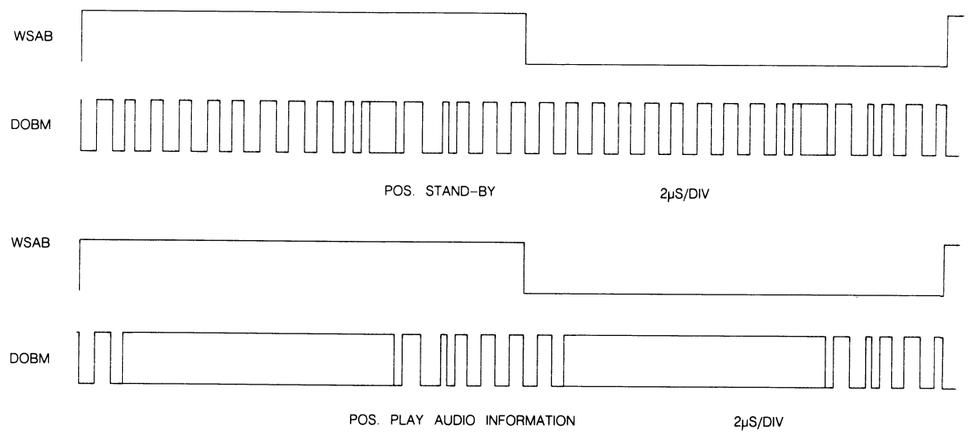
Signal	Mode	◇			Remarks
DEEM	Test disc 5A track 14 PLAY track 15 PLAY	84		"low" "high"	See testpoint 92 and 91 on DEEM circuit
Testpoint 92	Test disc 5A track 14	92		LF signal	
Testpoint 92	Test disc 5A track 15	92		No signal	
Testpoint 91	Test disc 5A track 14	91		LF signal	
Testpoint 91	Test disc 5A track 15	91		No signal	

T-22255N

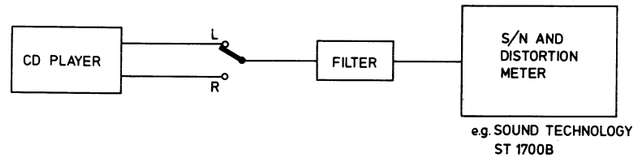
D6
SPECIFICATIONS MEASUREMENT

Signal	Mode	◇			Remarks
BU2-L	Test disc 3, play total harmonic distorsion	filter output	See spec.		See drawing 30459A12
BU2-R	Test disc 3, play total harmonic distorsion	filter output	See spec.		See drawing 30459A12
BU2-L	Test disc 3, play signal-to-noise ratio	filter output	See spec.		See drawing 30459A12
BU2-R	Test disc 3, play signal-to-noise ratio	filter output	See spec.		See drawing 30459A12

T-22255O



MDA.00238
07/133



30 459 A12

(GB) WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

ESD

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

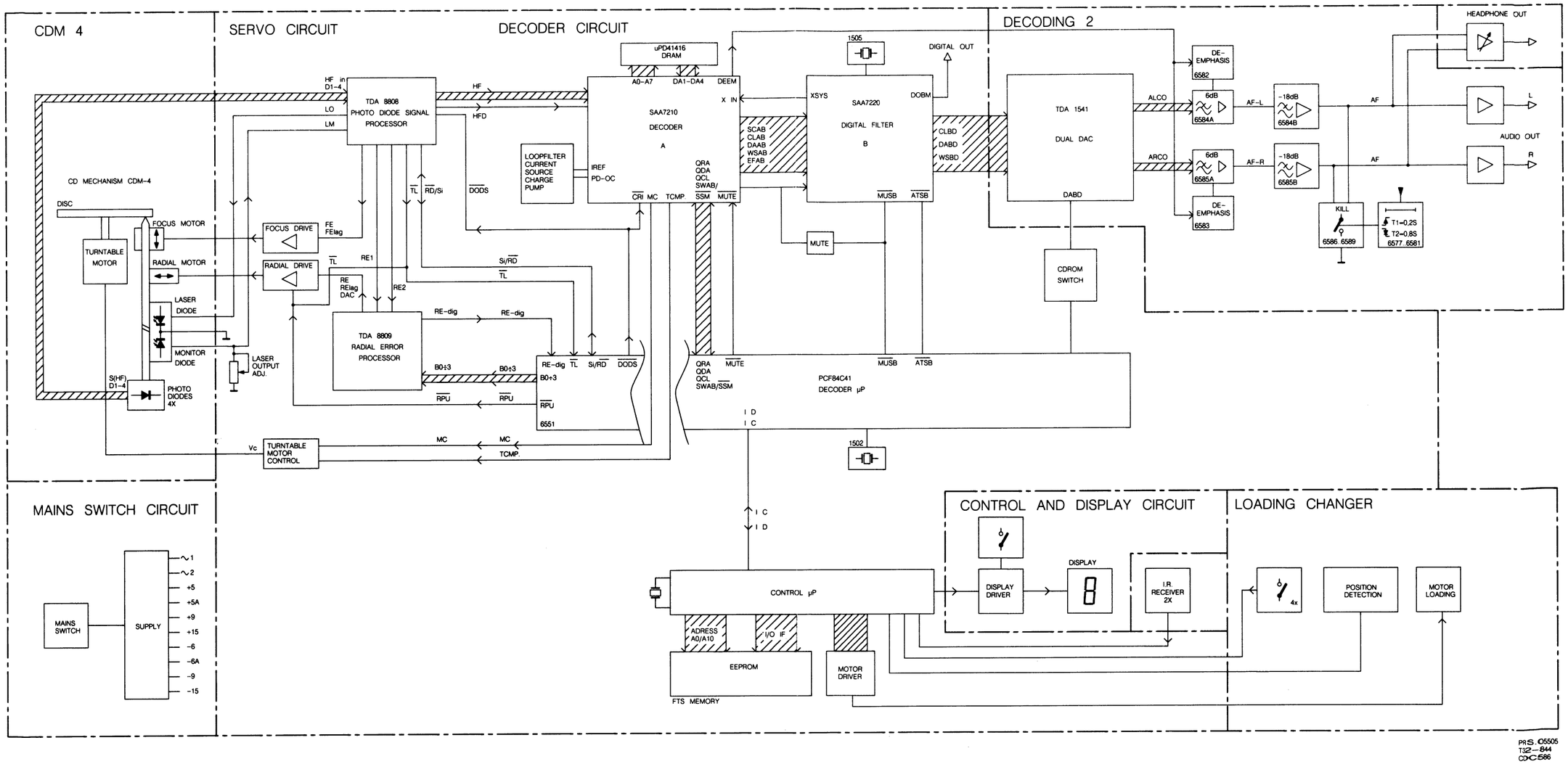
(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

(I) AVVERTIMENTO

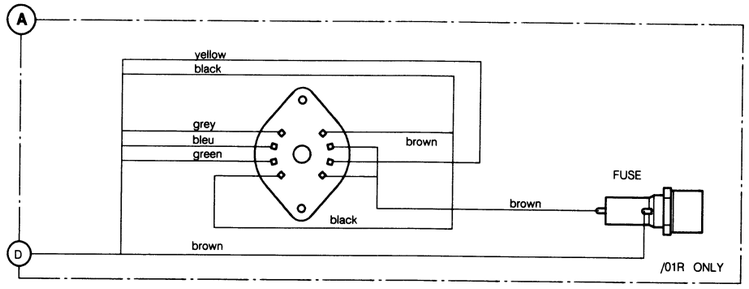
Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cautzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

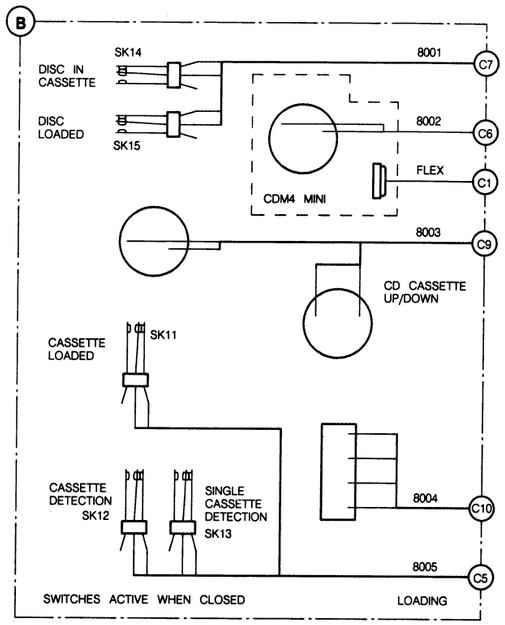
BLOCK DIAGRAM

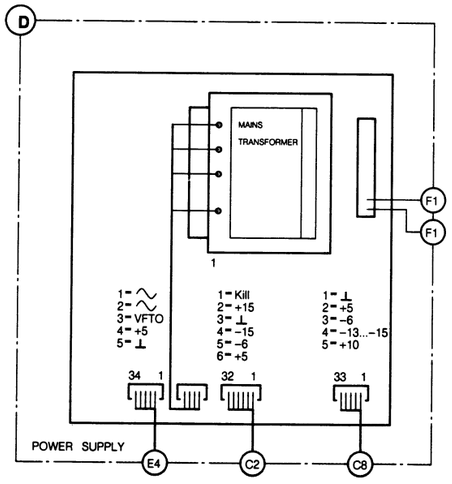


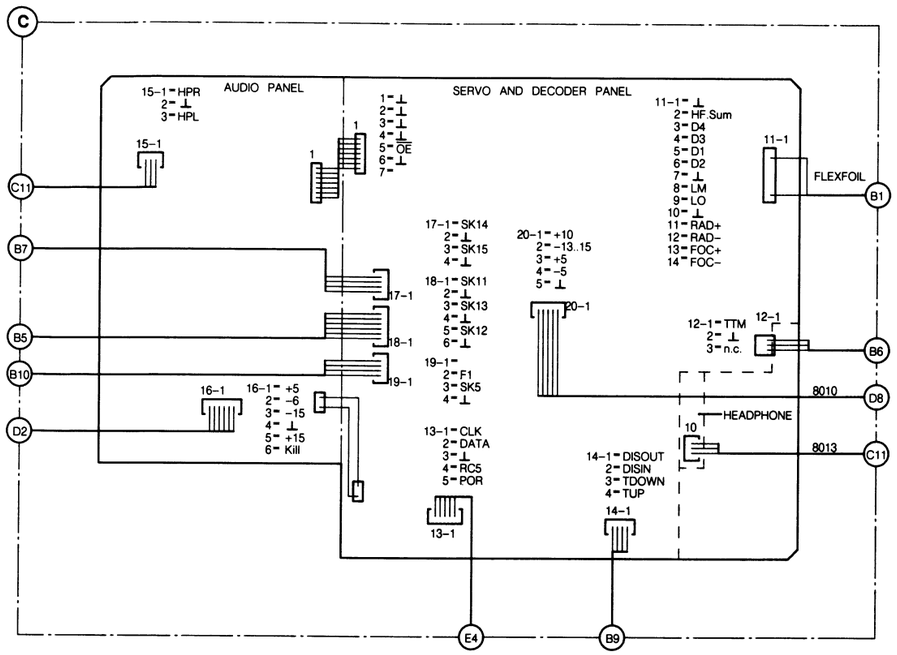
B0-B3	-	Control bits for radial circuit
DAC	-	Current output for track jumping (Digital to Analogue Converted)
$\overline{DODS}$	-	Drop out detector supression
D1÷4	-	Photodiode currents
FE	-	Focus error signal
FE-lag	-	Focus error signal for LAG network
HF	-	HF output for DEMOD
HFD	-	HF detector output for DEMOD
HF-in	-	HF current input
LM	-	Laser monitor diode input
LO	-	laser amplifier current output
MC	-	Motor control signal
RE	-	Radial error signal (amplified RE_2-RE_1 currents)
RE1	-	Radial error signal 1 (summation of amplified currents D_3 and D_4
RE2	-	Radial error signal 2 (summation of amplified currents D_1 and D_2
RE dig	-	Radial error digital
RE lag	-	Radial error signal for LAG network
RD	-	Ready signal, starting up procedure finished
$\overline{RPU}$	-	Radial puls after track jumping
$\overline{Si}$	-	On/off control for laser supply and focus circuit
$\overline{TL}$	-	Track loss signal
$\overline{Vc}$	-	Control voltage for turntable motor
$\overline{ATSB}$	-	Attenuation of Audio level in Search position (Cueing)
CD ROM Switch	-	Digital Data information on disc signal
CEFM	-	Clock Eight-to-Fourteen Modulator
CLAB	-	Clock signal Decoder-A to Filter-B
$\overline{CLBD}$	-	Clock signal Filter-B to DAC
$\overline{CRI}$	-	Counter Reset Inhibit
DAAB	-	Data signal Decoder-A to Filter-B
$\overline{DABD}$	-	Clock signal Filter-B to DAC
$\overline{DEEM}$	-	Deemphasis
DOBM	-	Digital out signal
EFAB	-	Error flag Decoder-A to Filter-B
$\overline{IREF}$	-	Reference Current
$\overline{MSTP}$	-	Motor start-stop signal
$\overline{MUTE}$	-	Mute signal
$\overline{MUSB}$	-	Soft Mute signal
PD/OC	-	Phase detector - oscillator control
POR	-	power on reset
QCL	-	Q-channel Clock signal
QDA	-	Q-channel Data signal
QRA	-	Q-channel Request Acknowledge
SCAB	-	Subcode clock Decoder-A to Filter-B
SCLK-I^2C	-	Serial Clock signal Decode-Control µP (Inter IC Connection)
SDAB	-	Subcode data Decoder-A to Filter-B
SDAT-I^2D	-	Serial Data signal Decoder Control µP (Inter IC Connection)
SWAB/$\overline{SSM}$	-	Subcode Word/Start-stop motor signal
TCMP	-	Turntable control motor puls
WSAB	-	Word Select Decoder-A to Filter-B
WSBD	-	Word Select Filter-B to DAC
XIN	-	Oscillator signal in Decoder-A
XSYS	-	Oscillator signal out Filter-B

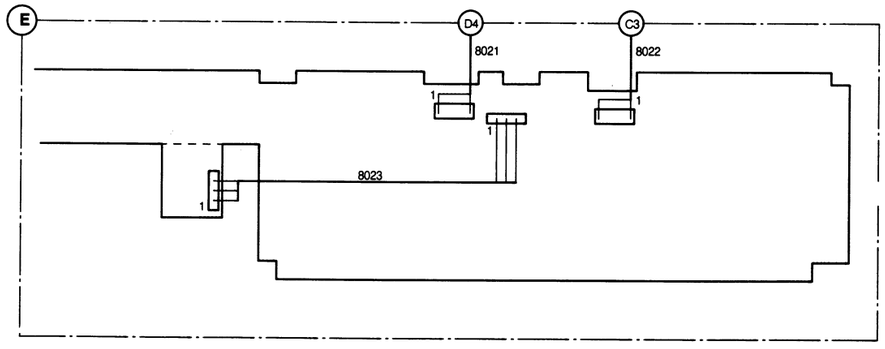
WIRING DIAGRAM

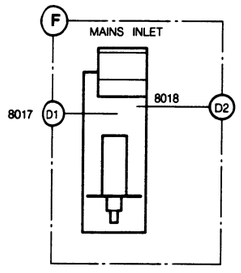












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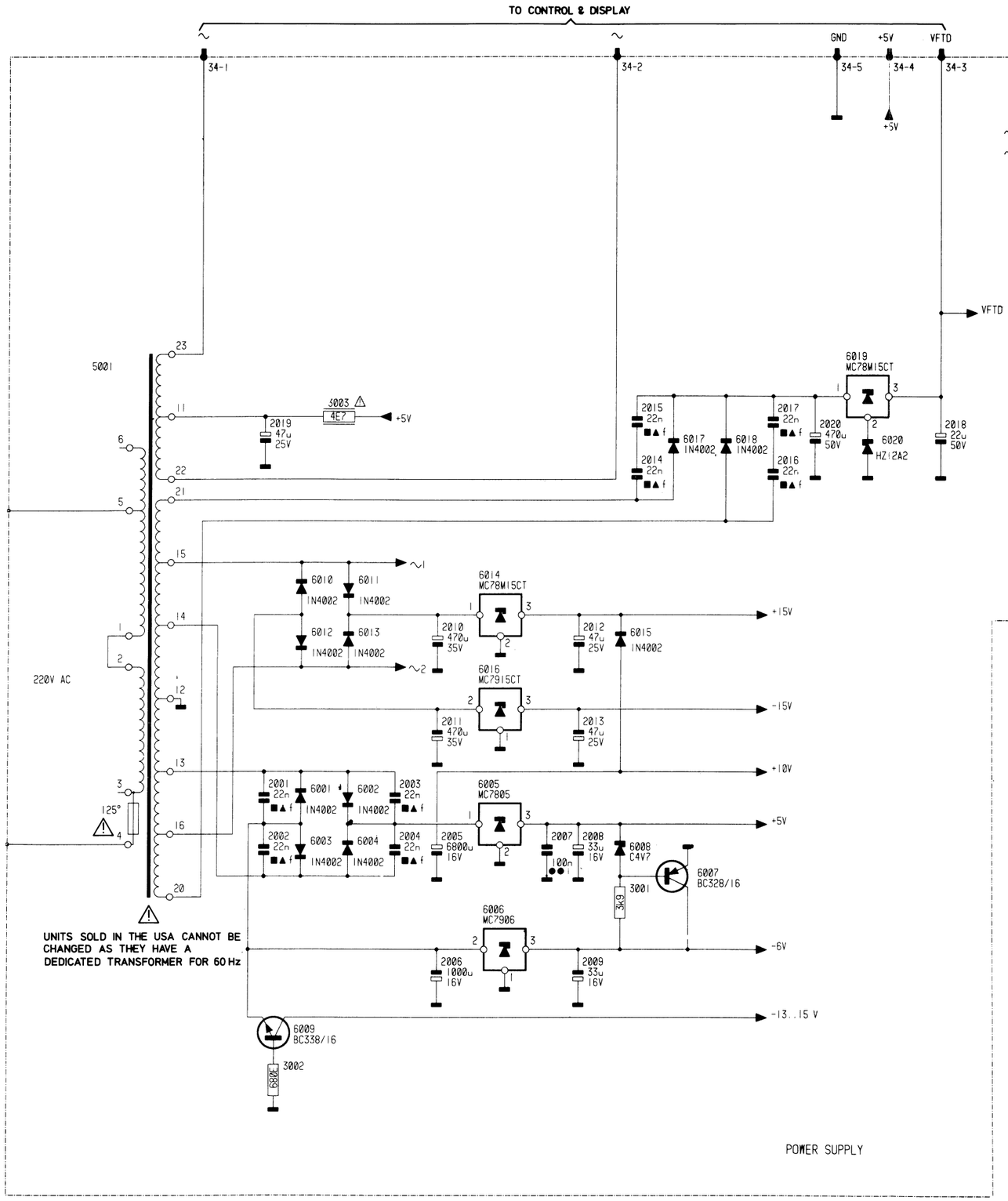
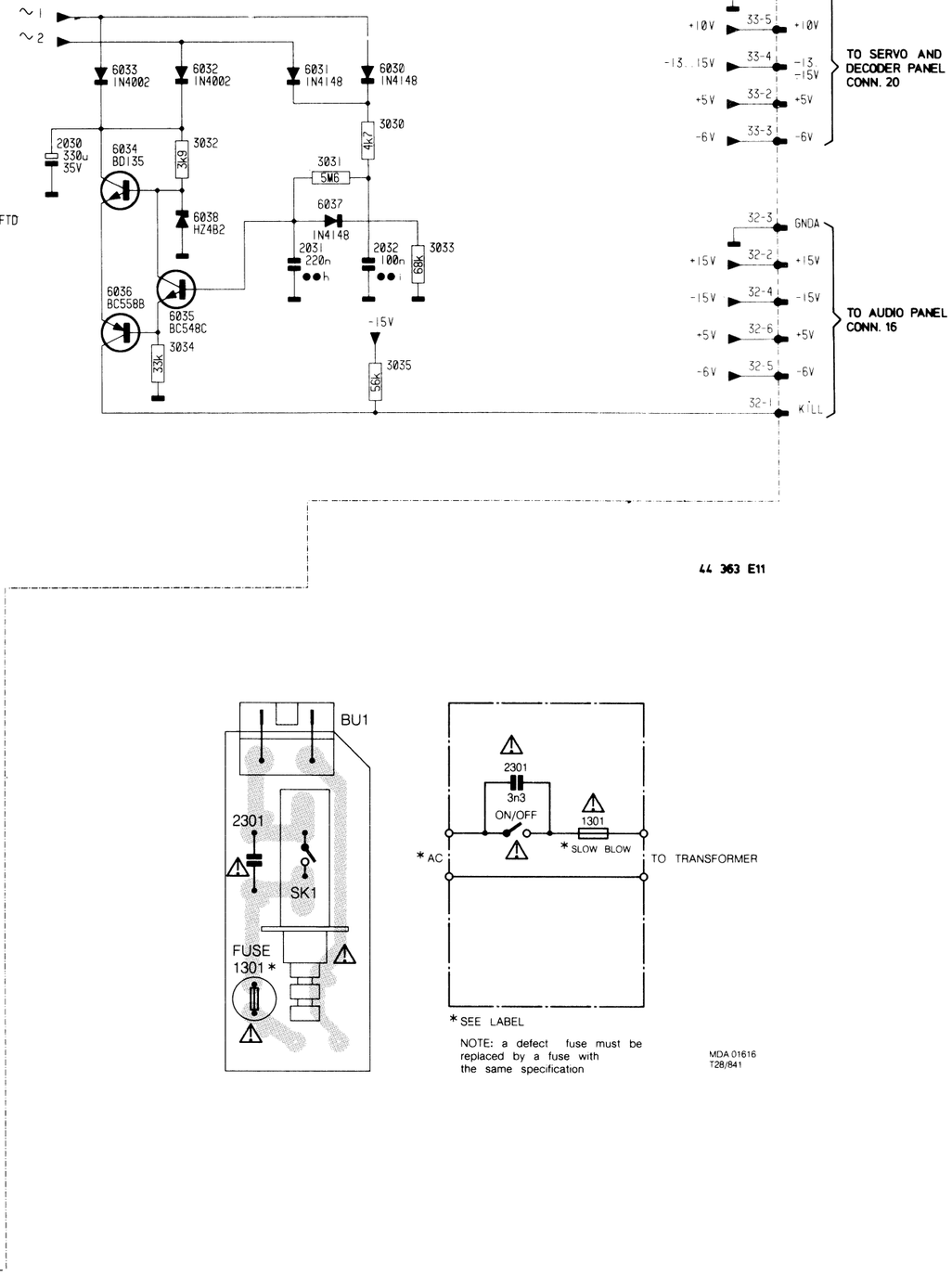
842/T28

POWER AND HEADPHONE DIAGRAM



POWER SUPPLY



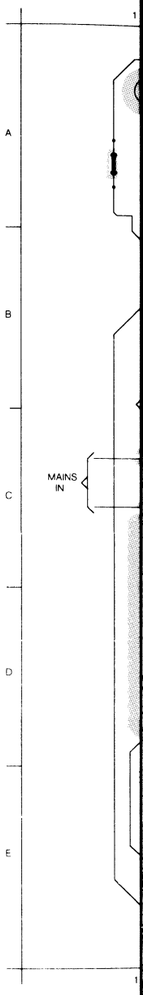
NOTE: a defect fuse must be replaced by a fuse with the same specification

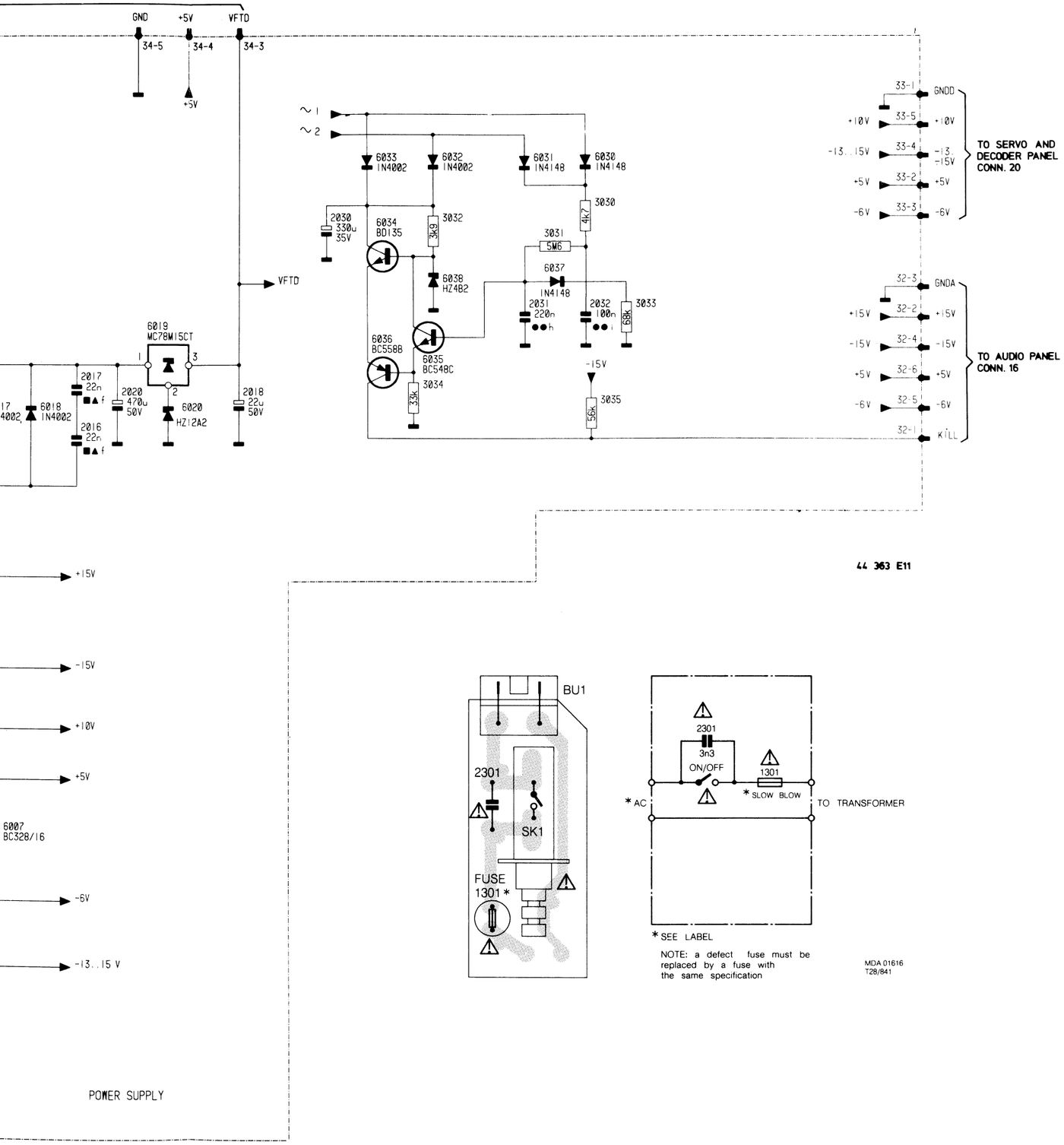
MDA 01616
T28/841

44 363 E11

POWER AND

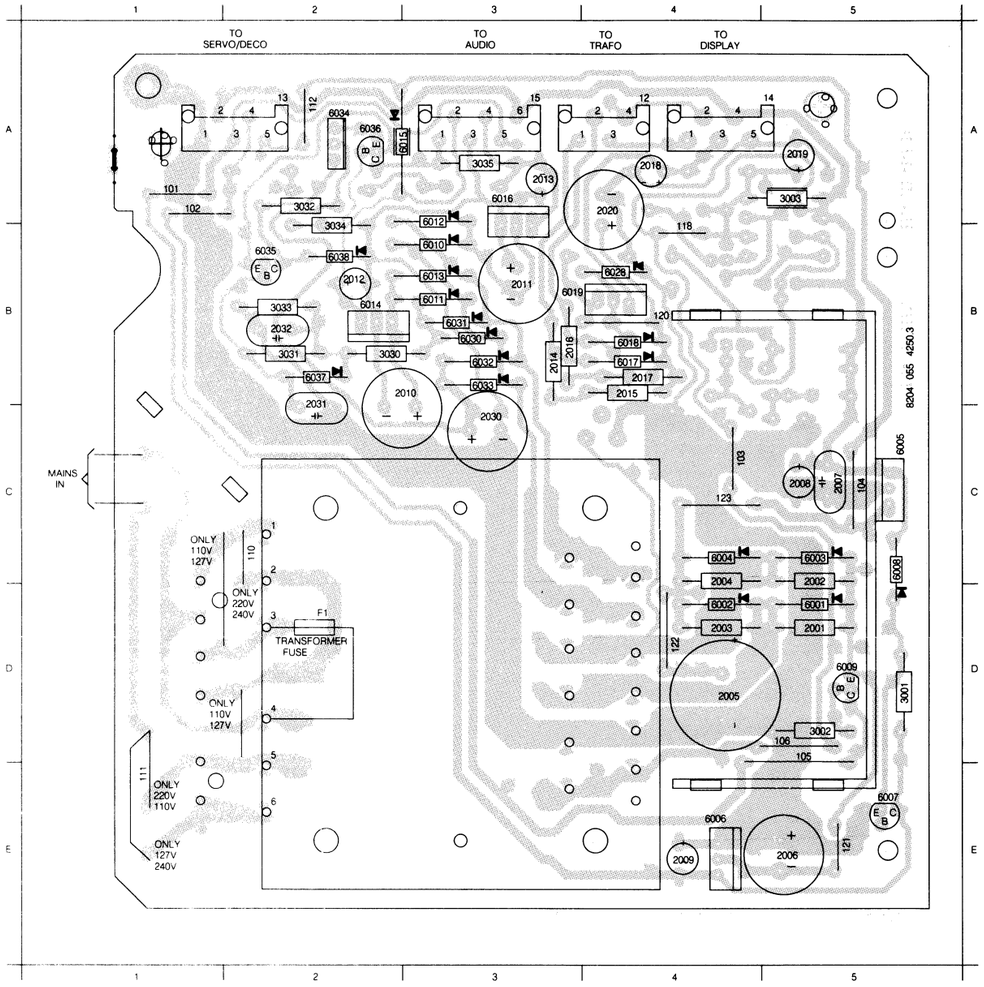
101	A	1	112
102	A	1	118
103	C	4	12
104	C	5	120
105	D	5	121
106	D	5	122
110	C	2	123
111	E	1	13





POWER AND HEADPHONE PANEL

101	A 1	112	A 2	14	A 4	2007	C 5	2015	B 4	2032	B 2	3034	B 2	6007	E 5	6015	A 3	6032	B 3	F1	D 2				
102	A 1	118	B 4	15	A 3	2008	C 5	2016	B 3	3001	D 5	3035	A 3	6008	C 5	6016	A 3	6033	B 3						
103	C 4	12	A 4	2001	D 5	2009	E 4	2017	B 4	3002	D 5	6001	D 5	6009	D 5	6017	B 4	6034	A 2						
104	C 5	120	B 4	2002	C 5	2010	B 2	2018	A 4	3003	A 5	6002	D 4	6010	B 3	6018	B 4	6035	B 2						
105	D 5	121	E 5	2003	D 4	2011	B 3	2019	A 5	3030	B 2	6003	C 5	6011	B 3	6019	B 3	6036	A 2						
106	D 5	122	D 4	2004	C 4	2012	B 2	2020	A 4	3031	B 2	6004	C 4	6012	A 3	6028	B 4	6037	B 2						
110	C 2	123	C 4	2005	D 4	2013	A 3	2030	C 3	3032	A 2	6005	C 5	6013	B 3	6030	B 3	6038	B 2						
111	E 1	13	A 2	2006	E 5	2014	B 3	2031	B 2	3033	B 2	6006	E 4	6014	B 2	6031	B 3	8204	B 5						



SERVO DIAGRAM

1001 J 1 2501 F 2 2507 E 6 2514 E 6 2532 I 16 2540 E20 2550 I 19 2565 J11 2593 A 9 3503 B19 3509 K 9 3523 I 2 3535 C13 3545 K12 3555 H19 3563 L12 3569 M11 3576 L17 3582 M15 3588 M13 3695 D 9 3828 C 4 6504 J11 6510 M19 6515 M15
1002 J 1 2502 E 4 2508 F 9 2515 G11 2534 G19 2541 K12 2551 J18 2570 L17 2594 A10 3504 B21 3510 I 10 3524 I 3 3540 F20 3550 I 21 3556 I 20 3564 L13 3570 L19 3577 N17 3583 N15 3589 M13 3801 N 7 6050 B17 6505 E19 6511 M19 6516 M16
1003 J 1 2503 E 4 2509 E 8 2520 J 3 2534 G19 2542 K12 2560 J10 2571 N14 2690 A 9 3505 E 7 3511 I 9 3530 I 13 3541 F19 3550 I 20 3557 J18 3565 K13 3571 N19 3578 M17 3584 L14 3591 A 8 3807 A20 6501 K 5 6506 E19 6512 M17 6517 A 5
1501 A 9 2504 F 3 2510 E 9 2521 J 3 2536 I 15 2543 K12 2561 L 9 2572 M16 2691 A 9 3506 E 6 3520 K 3 3531 I 14 3542 E20 3552 G20 3560 K10 3566 K13 3573 M18 3579 M16 3585 L14 3592 A 7 3809 L16 6502 I 3 6507 H19 6512 M14 6518 A 7
2050 B17 2505 E 5 2511 E 8 2530 I 14 2537 I 13 2544 K12 2562 L13 2574 M14 3501 E 3 3507 E 8 3521 K 3 3533 H18 3543 E19 3553 I 19 3561 K10 3567 K11 3574 L15 3580 N15 3586 L16 3596 C 9 3810 C 9 6503 D11 6507 I 17 6513 L16
2051 B18 2506 E 5 2513 H 9 2531 I 14 2538 C14 2545 E20 2563 K13 2592 A 8 3502 F 3 3508 E 6 3522 I 3 3534 G19 3544 J12 3554 H19 3562 L10 3568 L10 3575 L15 3581 M15 3587 N15 3597 A 9 3827 L10 6504 D19 6508 I 19 6514 M15

SERVO

DECODER-1 IC6522 — HF, DODS, HFD

6517 A/2 MAB8441 µP — RESET, Vdd, XTAL1, XTAL2, IRQ, CPU, INT/T0, T1, D6, I/O PORTS 0-7 0-6 0-5 0-4, Vss, TL, RE-dig, SI, DIV4, TCMP 3825

6503 © TDA8809 — ROM, 3½-BIT DAC, RADIAL, LAG SHORT CIRCUIT, Cagc

RADIAL ERROR PROCESSOR — INTEGRATING AMPLIFIER, RAD OUT, 50µA, OSCILLATOR 650Hz, 0°, 45°, 90°, LEAD, LAG, LAG HOLD, RADIAL, RELAG, LAG SHORT CIRCUIT, U/I, RADIAL, RE IN, Vref

RADIAL DRIVE — 6504-(1/2)B TCA0372(A), RAD+, RAD-, TO RADIAL MOTOR VIA FLEX-PRINT

FROM POWER SUPPLY 33 — 13.15V, +10, GND, +5, -6, 6050 MC7912, -12, 2050 330n, 2051 33µ 16V, 3503 4E7, 3504 4E7, +5B, -6B

C.D.M. — FLEX PRINT (FOIL), DIODE ASSEMBLY, D1–D4, GUARD RING PHOTODIODE, LASER ASSEMBLY, 1002 LASER, MONITOR, LASER OUTPUT ADJ

PHOTO DIODE SIGNAL PROCESSOR — 6501 © TDA 8808, HF AMPLIFIER, EQUALIZER, GAIN CONTROL, HF AMPLITUDE SLICERS, LASER SUPPLY, STARTING CIRCUIT, FOCUS NORMALIZING CIRCUIT, HFin, HFout, HFL, DO, DODS, HFD, RE1, RE2, Sc, SI/RD, RPU, FE, FS, FElag

FOCUS DRIVE — 6504 TCA0372(B), FOCUS OFFSET, TO FOCUS MOTOR VIA FLEX PRINT, FOC-, FOC+

TURNTABLE MOTOR CONTROL — TCMP(µP) 6517, 6512 -(1/2)A NJM4560, 6513 BA314, 6514 HZ3B2, 6515 HZ3B2, 6516 BA314, 6512 -(1/2) NJM4560, 6510 BC338/25, 6511 BC328/25, TO TURNTABLE MOTOR, TTM-, N.C

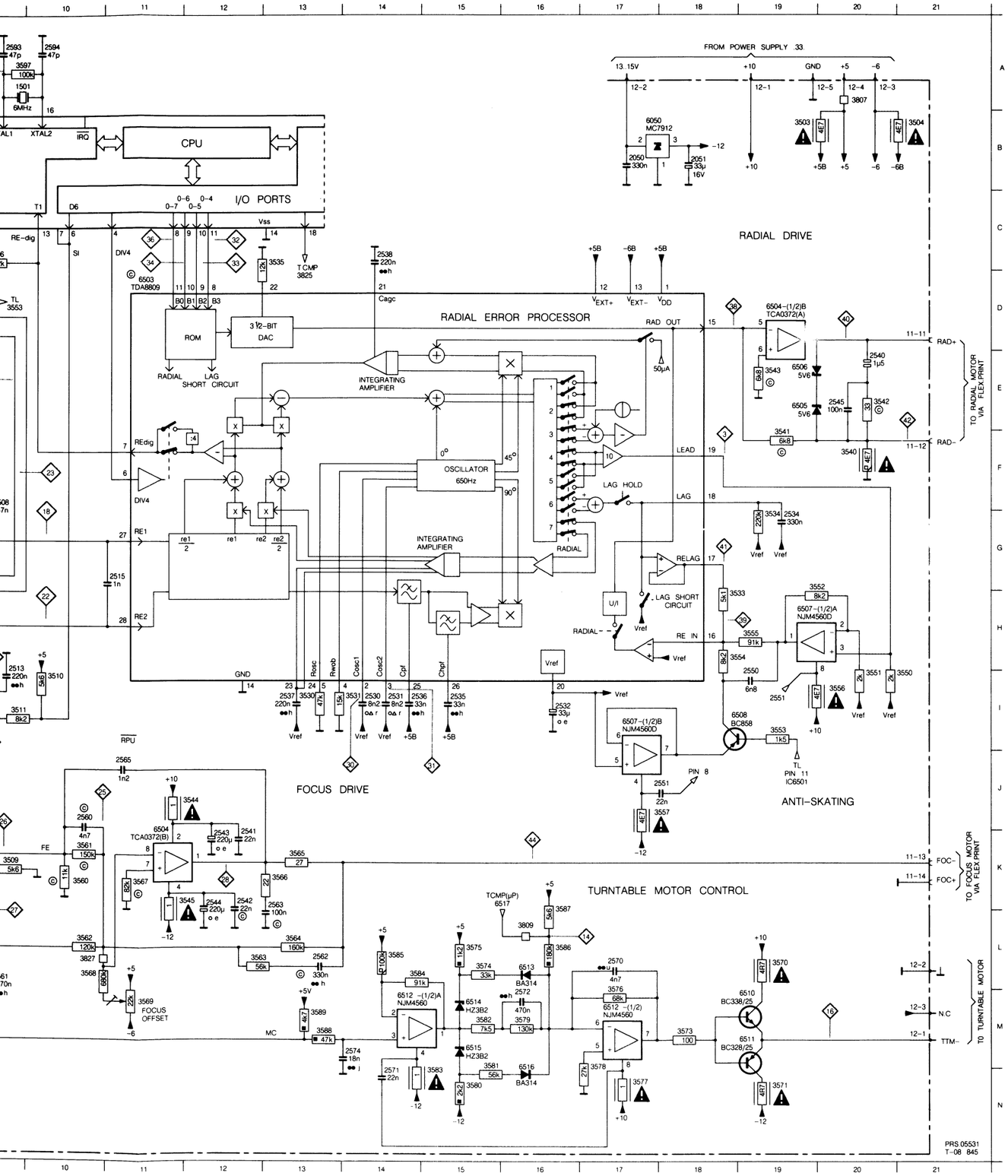
ANTI-SKATING — 6507-(1/2)A NJM4560D, 6507-(1/2)B NJM4560D, 6508 BC858, TL PIN 11 IC6501, PIN 8

DECODER-A IC6522 — MC

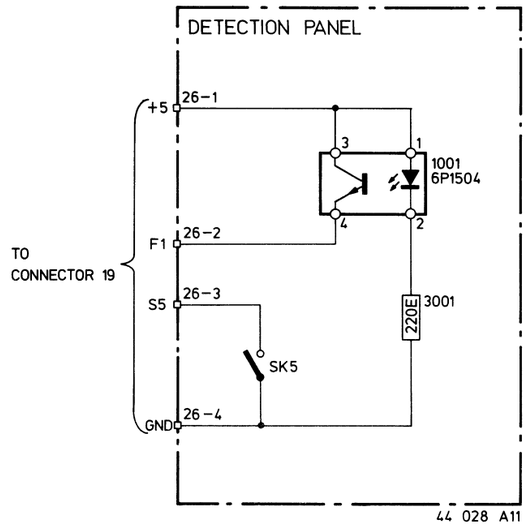
-CHIP JUMPER (0Ω)

PRS.05531 T-08 845

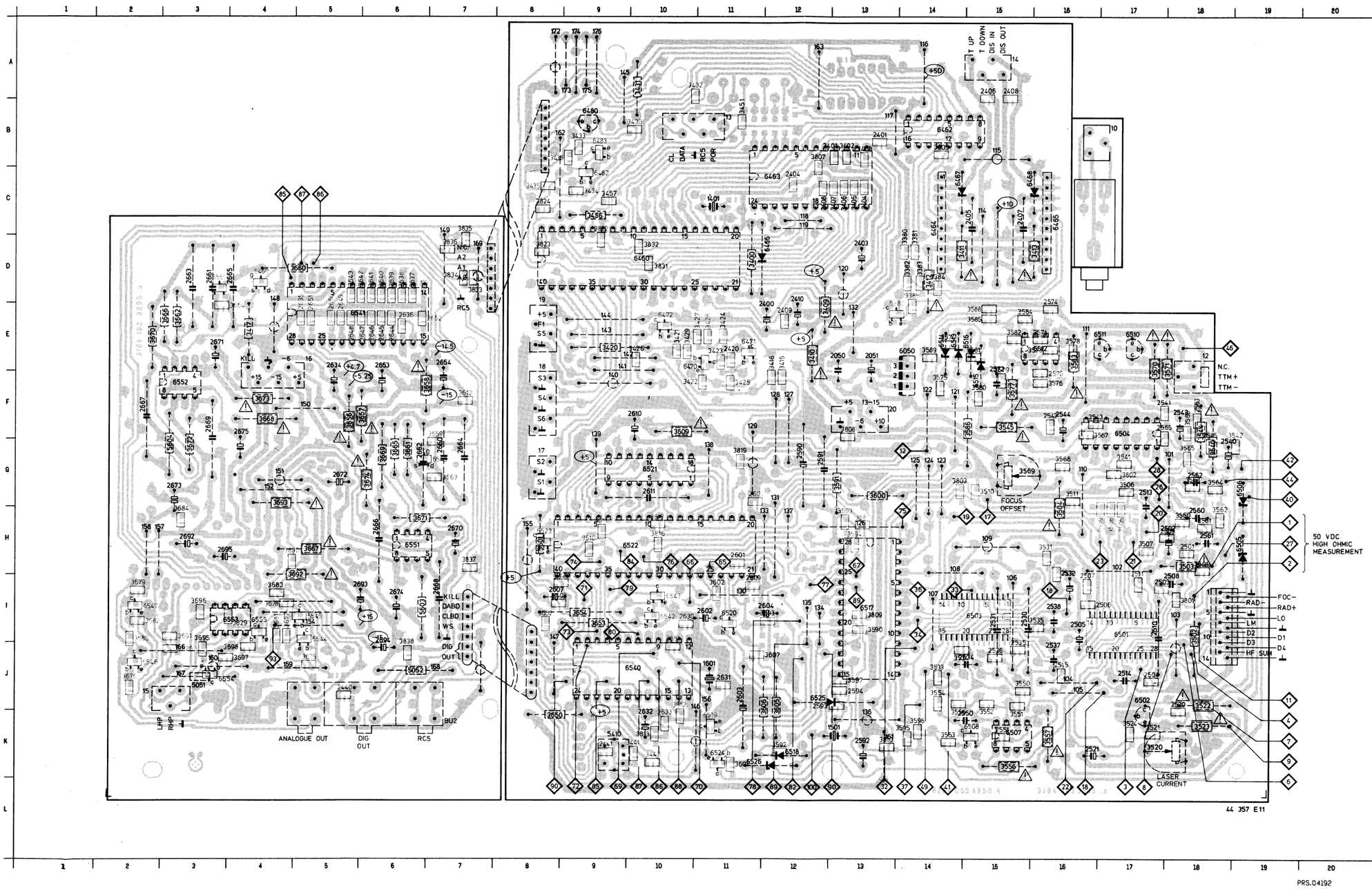
K 9	3523	I 2	3535	C13	3545	K12	3555	H19	3563	L12	3569	M11	3576	L17	3582	M15	3588	M13	3695	D 9	3828	C 4	6504	J11	6510	M19	6515	M15
I 10	3524	I 3	3540	F20	3550	I 21	3556	I 20	3564	L13	3570	L19	3577	N17	3583	N15	3589	M13	3801	N 7	6050	B17	6505	E19	6511	M19	6516	M16
I 9	3530	I 13	3541	F19	3551	I 20	3557	J18	3565	K13	3571	N19	3578	M17	3584	L14	3591	A 8	3807	A20	6501	K 5	6506	E19	6512	M17	6517	A 5
K 3	3531	I 14	3542	E20	3552	G20	3560	K10	3566	K13	3573	M18	3579	M16	3585	L14	3592	A 7	3809	L16	6502	I 3	6507	H19	6512	M14	6518	A 7
K 3	3533	H18	3543	E19	3553	I 19	3561	K10	3567	K11	3574	L15	3580	N15	3586	L16	3596	C 9	3810	C 9	6503	D11	6507	I 17	6513	L16		
I 3	3534	G19	3544	J12	3554	H19	3562	L10	3568	L10	3575	L15	3581	M15	3587	K16	3597	A 9	3827	L10	6504	D19	6508	I 19	6514	M15		



POSITION DETECTION PANEL



AUDIO PANEL



1401	C11	2691	I 3	3595	K14	6546	J 2
1501	K13	2692	H 3	3596	K14	6547	I 2
1601	J11	2693	H 6	3600	G13	6549	D 7
2050	E13	2694	I 6	3601	K11	6550	D 3
2050	E13	2695	H 3	3602	I11	6551	H 6
2051	E13	3380	C14	3603	I12	6552	E 3
2400	D12	3381	C14	3605	J12		
2401	B13	3382	D14	3606	J12		
2402	A12	3383	D14	3607	J12		
2403	C13	3384	D14	3609	F10		
2404	B12	3385	D14	3610	H 9		
2405	C15	3400	D11	3611	H 9		
2406	A15	3401	B13	3612	F 7		
2407	C15	3402	B13	3650	F 7		
2408	A15	3403	B13	3650	J 8		
2409	D12	3404	C13	3651	I10		
2410	D12	3405	C13	3652	I 8		
2420	E11	3406	C13	3653	I 9		
2426	E10	3407	C13	3654	I 9		
2440	J 5	3408	C12	3656	F 5		
2441	K 9	3409	D13	3657	F 6		
2501	H18	3410	E12	3658	E 7		
2502	H18	3411	D15	3660	D 5		
2503	I18	3412	D14	3661	F 6		
2504	J17	3413	D16	3662	D 3		
2505	I16	3415	E12	3663	G 7		
2506	I17	3416	E12	3665	F 6		
2507	H16	3417	E 4	3666	D 3		
2508	H18	3420	E 9	3667	H 5		
2509	H18	3421	E10	3668	F 4		
2509	H11	3422	F10	3669	G 6		
2510	I17	3423	E11	3670	E 2		
2511	H17	3424	E11	3671	G 6		
2513	G17	3425	F11	3672	F 3		
2514	J17	3427	E11	3673	F 4		
2515	J16	3428	E11	3674	G 6		
2520	J18	3429	E10	3675	J 5		
2521	K17	3430	B10	3676	J 2		
2530	I15	3431	A11	3677	I 5		
2531	I15	3432	A11	3678	I 4		
2532	H16	3433	B 9	3679	I 2		
2534	J15	3434	C 9	3680	I 2		
2535	I15	3435	C 8	3681	I 4		
2536	I15	3436	B 8	3682	I 2		
2537	I16	3440	K10	3690	J 4		
2538	H16	3441	K10	3691	I 3		
2540	F18	3451	A11	3692	H 5		
2541	F17	3452	A11	3693	G 4		
2542	F16	3453	A12	3694	H 5		
2542	F19	3454	A12	3701	J18		
2543	F18	3455	A12	3802	G17		
2544	F16	3468	B16	3803	G15		
2545	F18	3501	H18	3805	B14		
2550	J15	3502	I18	3806	A12		
2551	K15	3503	H18	3807	B12		
2560	G18	3504	G16	3808	F13		
2561	H18	3505	H17	3809	I13		
2562	F18	3506	G17	3810	K13		
2565	G18	3507	I17	3811	J10		
2565	F18	3508	H17	3813	K10		
2570	E16	3509	H17	3816	H10		
2571	E16	3510	G15	3817	H10		
2572	E15	3511	G16	3819	G11		
2574	D16	3520	K17	3822	C 9		
2590	F12	3521	K17	3825	J 5		
2591	G12	3522	J18	3826	J 3		
2592	K13	3523	K18	3828	H 9		
2600	G11	3524	K17	3830	H 5		
2601	H11	3530	H16	5400	K 9		
2602	I11	3533	J14	5501	I 5		
2603	J11	3534	J15	5503	I 8		
2604	I12	3535	I16	5903	I 7		
2607	I 8	3540	F18	6400	F 3		
2608	I 9	3541	G17	6501	E14		
2610	F10	3544	F18	6502	D14		
2611	G10	3545	F15	6503	D10		
2630	I10	3550	J15	6504	B13		
2631	H11	3551	J15	6505	B14		
2632	J10	3552	J15	6506	B12		
2633	J10	3553	K14	6507	C14		
2634	E 5	3554	J14	6508	C16		
2635	D 5	3555	G18	6509	C12		
2636	E 6	3555	J15	6510	B14		
2637	D 6	3556	K15	6511	D 4		
2638	D 6	3557	K16	6512	E10		
2639	D 6	3560	H18	6513	E11		
2640	D 6	3561	H18	6514	E10		
2641	D 6	3562	G18	6515	B 9		
2642	D 6	3563	G18	6516	B 9		
2643	D 5	3564	G18	6517	B 9		
2644	E 6	3566	F18	6518	I17		
2645	E 6	3567	F17	6520	J17		
2646	E 6	3568	G16	6521	I15		
2647	E 6	3569	G15	6522	F17		
2648	E 5	3570	E17	6525	G19		
2649	D 5	3571	E18	6526	K15		
2650	D 5	3573	E16	6540	K15		
2651	D 5	3574	E14	6550	E17		
2652	E 7	3575	E14	6551	E17		
2653	E 6	3576	F16	6552	E16		
2654	E 7	3577	F15	6553	E14		
2660	F 7	3578	E16	6554	E14		
2661	D 3	3579	E15	6555	E15		
2662	F 6	3580	D15	6557	I13		
2663	D 3	3581	E15	6558	K12		
2664	F 7	3582	E15	6559	J11		
2665	D 4	3583	E16	6560	I11		
2666	H 6	3584	D15	6561	G10		
2667	F 2	3585	E15	6562	H10		
2668	H 7	3586	F15	6563	H 8		
2669	F 3	3587	H13	6564	K11		
2670	H 7	3588	D15	6565	J12		
2671	E 3	3589	E14	6565	K11		
2672	G 5	3590	I13	6570	J10		
2673	G 3	3591	G13	6571	D 8		
2674	I 6	3592	K12	6572	I10		
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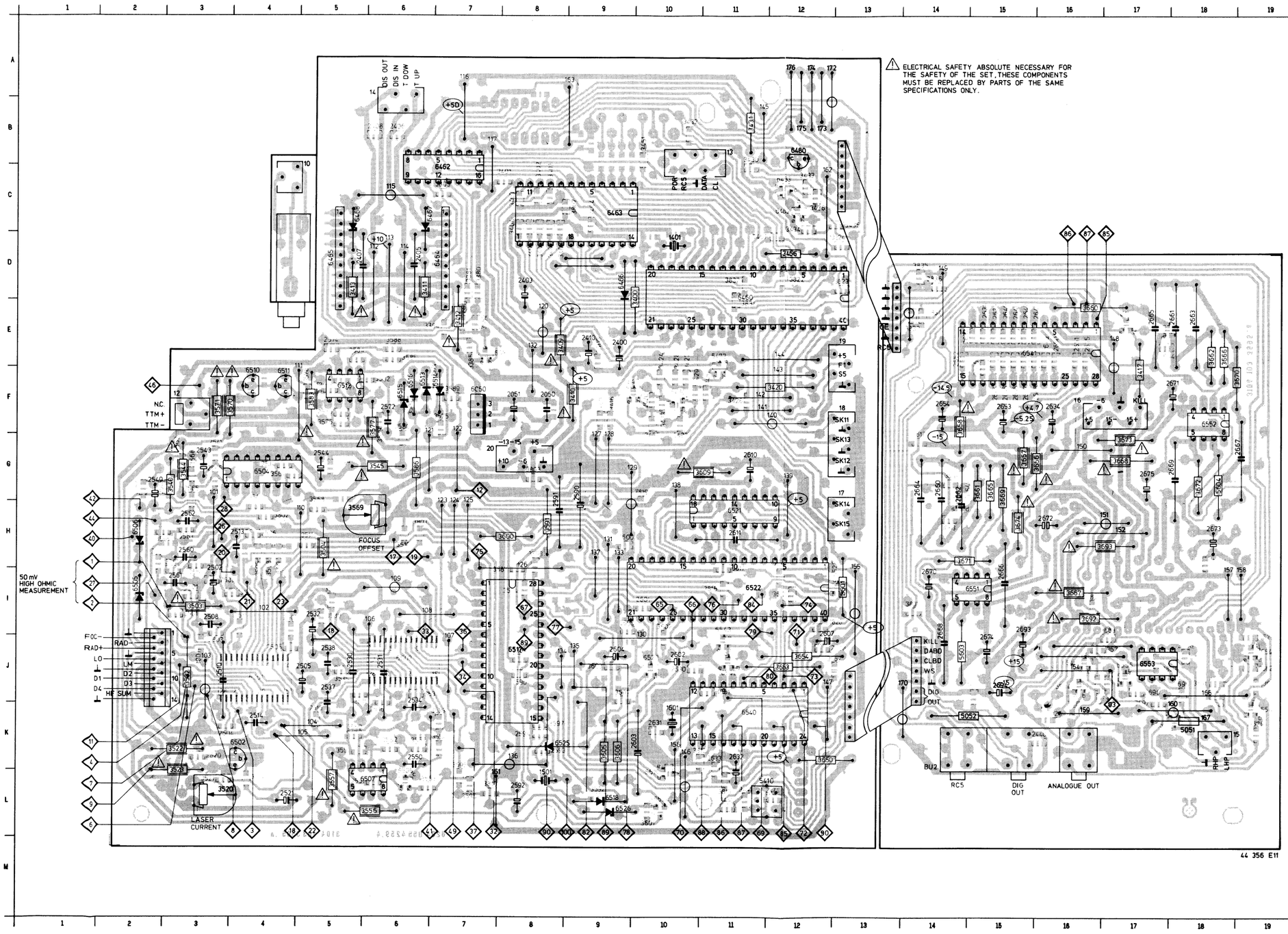
AUDIO PANEL



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	1501	L 8	3402	C 8	3653	J12
	1601	K10	3403	C 8	3654	J12
	2050	F 8	3404	C 8	3656	G16
	2051	F 8	3405	D 8	3657	G15
A	2400	E 9	3406	D 8	3658	F14
	2401	C 8	3407	D 8	3659	G14
	2402	B 9	3408	D 8	3660	E16
	2403	D 8	3409	E 8	3661	G15
	2404	C 9	3410	F 9	3662	E18
	2405	B 6	3411	D 6	3663	H14
	2406	B 6	3412	E 7	3664	E17
	2407	D 5	3413	D 5	3665	G15
	2408	B 6	3415	F 9	3666	E18
B	2409	E 9	3416	F 9	3667	I16
	2410	E 9	3417	E17	3668	D17
	2420	F10	3420	F12	3669	G15
	2440	K16	3422	G10	3670	F18
	2441	L12	3423	F10	3671	H14
	2501	I 3	3424	E10	3672	G18
	2502	H 3	3425	G10	3673	G17
	2503	J 3	3426	F11	3674	H15
	2504	K 3	3427	E10	3675	J16
C	2505	J 5	3428	E10	3676	K18
	2506	J 4	3429	F10	3677	J16
	2507	I 4	3430	B11	3678	J16
	2508	I 3	3431	B11	3679	J19
	2509	I 3	3432	B10	3680	J19
	2510	J 3	3433	C12	3681	J17
	2511	I 4	3434	C12	3682	J19
	2513	H 4	3435	C13	3690	K17
	2514	K 4	3436	C12	3691	J18
	2515	K 5	3440	L11	3692	I16
D	2520	K 3	3441	L11	3693	H16
	2521	L 4	3451	B10	3694	I16
	2524	G 5	3451	F11	3801	J 3
	2530	J 5	3452	B 9	3802	H 4
	2531	J 6	3453	B 9	3803	H 6
	2532	I 5	3454	B 9	3805	E 7
	2534	J 6	3455	B 9	3806	B 9
	2535	K 5	3468	C 5	3807	C 9
	2536	K 6	3501	I 3	3808	G 8
E	2537	J 5	3502	J 3	3809	J 8
	2538	J 6	3503	I 3	3810	J 7
	2540	G 2	3504	H 5	3812	K10
	2541	G 3	3505	I 4	3813	L11
	2543	G 3	3506	H 4	3816	I11
	2544	G 2	3507	I 4	3817	J11
	2545	G 2	3508	I 4	3819	G10
	2550	K 6	3509	I 4	3822	D12
	2551	L 5	3510	H 6	3826	K16
F	2560	H 3	3511	H 5	3826	J18
	2561	I 3	3520	L 3	3828	I13
	2562	H 3	3521	L 3	3410	L11
	2563	G 3	3522	K 3	3601	I13
	2565	G 3	3523	L 3	3603	J14
	2570	F 5	3524	L 4	3604	G18
	2571	F 5	3530	I 5	3050	F 7
	2572	F 6	3531	I 5	3380	E 8
	2574	E 5	3533	K 7	4450	D11
	2590	G 9	3534	G 4	4461	B 8
G	2591	G 8	3534	J 7	4462	C 7
	2592	L 8	3535	J 5	4463	C 9
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	2601	I10	3541	G 4	4464	D 7
	2602	J10	3542	G 2	4465	D 5
	2603	K10	3544	G 3	4466	D 9
	2604	J 9	3545	G 6	4467	C 6
	2607	I12	3550	K 5	4469	E17
	2608	J13	3551	K 5	4470	F10
H	2609	I 9	3552	K 6	4471	F 9
	2610	G11	3553	L 6	4472	H11
	2611	H11	3554	K 7	4480	B12
	2630	J10	3555	K 6	4482	C12
	2631	K10	3556	L 6	4483	C12
	2632	K11	3557	L 5	5001	J 4
	2633	K11	3560	I 3	5002	K 4
	2634	F16	3561	H 3	5003	J 6
	2635	E16	3562	H 2	5004	G 4
	2636	E15	3563	H 3	5005	I 2
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	2645	F15	3573	F 5	5015	F 6
J	2646	F15	3574	F 7	5016	F 6
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K	2660	G14	3583	F 5	5026	L 9
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	2665	E17	3589	F 8	5044	J16
	2666	H15	3590	J 8	5045	J16
	2667	G19	3591	H 8	5046	K19
	2668	I14	3592	L 9	5047	J19
L	2670	I14	3593	H 8	5048	K11
	2671	F18	3594	I 8	5049	G15
	2672	H16	3595	L 7	5050	E17
	2673	H18	3596	K 7	5051	I15
	2675	G17	3600	H 8	5052	F18
	2690	J16	3601	L10		
	2691	J18	3602	I10		
	2692	I18	3603	J 9		
	2694	J15	3605	K 9		
	2695	I17	3606	K 9		
	3380	D 7	3607	J 9		
	3381	D 7	3609	G10		
	3382	E 7	3610	I12		
	3383	E 7	3611	H12		
	3384	E 6	3612	F14		
	3385	E 7	3650	K12		

DECODING DIAGRAM

1601 M14 2441 H20 2601 E 2 2603 I 2 2607 L 2 2609 M 4 2611 N 9 2631 N15 2633 M18 3441 H20 3593 D 8 3600 E 2 3602 F 3 3605 H 2 3607 I 2 3650 M18 3652 D13 3654 D13 3813 D15 3817 M11 3828 M11 5601 L 2 6519 D17 6522 D 3 6525 G 2 6540 G12 6543 D12
2440 H20 2600 F 2 2602 F 3 2604 J 3 2608 L 3 2610 N10 2630 N14 2632 M18 3440 G20 3590 D17 3594 D 8 3601 I 1 3603 I 3 3606 I 2 3609 M10 3651 M14 3653 E13 3812 E19 3816 D10 3819 F13 5410 H21 6517 B 1 6521 M 6 6524 H 1 6526 I 1 6542 D13 6620 H 2

DECODING 1

6517 (B/2)
PCF84C41

µP

N.C
18 21 23 24

I/O PORTS

CLOCK
I²C
1/O 3
I²D
LOADING CONTROL UP TO IC 6460

B–4 A–7 B–3 D–5 B–1 B–0 B–4 B–4

HFD 22
DODS
5
20 MSTP
26 27 1
MUTE 25
24 ATSB
MUSB 23
19

6522
SAA7210
DECODER–A
28
CRI
33
SWAB/SSM
29 31 30
QDA QCL QRA

+5 3594 22k
+5 22k 3593
3816

6543 BC818
4k7 3654
6542 BC848
10k 3652
3653 22k
3813
+5 4k7 3590
6519 BC818
CD ROM SWITCH
3812

SERVO CIRCUIT
HF
3600 1k2
2601 1n8
2600 100p
3602 22k
25 HFI
24 FB
2602 2µ2 50V

DATA SLICER
DEMOD. TIMING
EFM DECODER
SUBCODE PROCESSOR
Q CHANNEL PROCESSOR
DEEM 32
DEEM DECODING2 CIRCUIT

FIFO CONTROL & RAM INTERFACE
X-TAL CLOCK
MC 17
3819
MC SERVO CIRCUIT

6540
SAA7220
FILTER–B
22 ATSB
23 MUSB
SCAB 35
SDAB 34
6 SCAB
7 SDAB

HFD 26
6525 BAT85
HFD

+10
6524 BC848
3605 750
6620 BF550
820 3601
3606 3k3
2603 47µ 16V
6526 HZ7A3
23 IREF
22 PD/OC
10k 3607
39k 3603
2604 6µ8 50V

PHASE & FREQUENCY DETECTOR
V.C.O.
CONTROL
ADDRESS
DATA & FLAG

MUTE 11
C1 INTERLEAVER CORRECTOR
C2 INTERLEAVER CORRECTOR DESCRAMBLER
ADAPTIVE FLAG PROCESSOR
1 SAMPLE INTER–POLATOR & SAMPLE /HOLD & MUTE CIRCUIT
WSAB 39
CLAB 38
DAAB 37
EFAB 36

1 WSAB
2 CLAB
3 DAAB
4 EFAB
CHANNEL DEMULTI–PLEXER
INPUT STAGE

8 SAMPLE INTERPOLATOR
12 dB ATTENUATOR
SOFT MUTE CIRCUIT
4 x UPSAMPLING DIGITAL FILTER
DIGITAL OUTPUT ENCODER
DOBM 14
3440 560
560 3441 5t10
2441 56n
2440 56n
DIGITAL OUT

CHANNEL MULTI–PLEXER CIRCUIT
OUTPUT STAGE
DABD 15
CLBD 16
WSBD 18
DABD
CLBD
WSBD
DECODING2 CIRCUIT

CEFM 27
+5 5601 4µ7
2607 33µ 16V
2608 22n
40 Vdd
20 Vss
21 Vbb
2609 22n

X-TAL CLOCK
X-TAL OSCILLATOR
X IN 19
X OUT 18

1 2 3 4 5 6 7 8 9 10 12 13 14 15 16 17
10 11 12 13 14 8 7 6 5 4 3 2 15 16 17

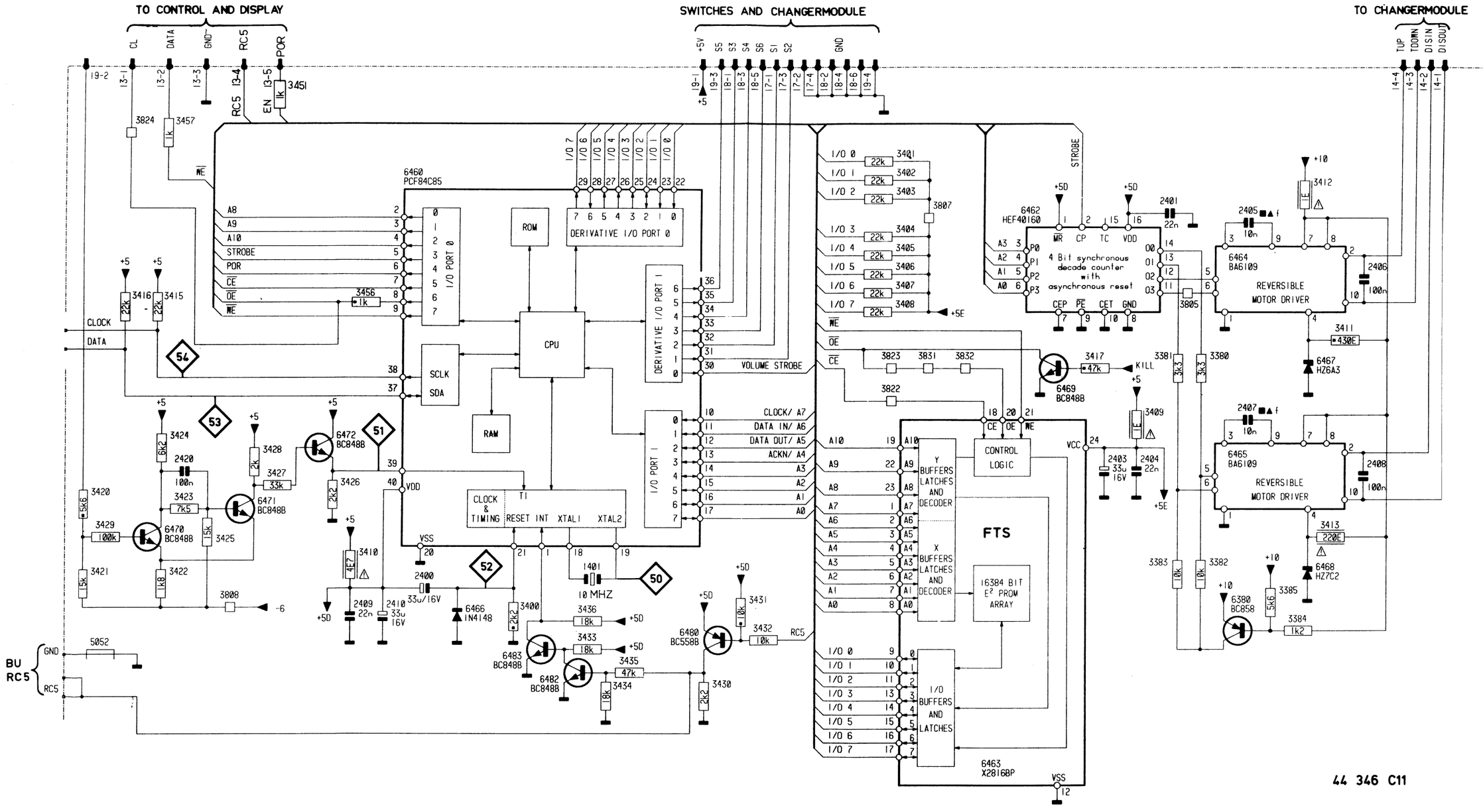
DRAM
6521
UPD41416C-20
Vss 18
G 1
Vdd 9
3609 4E7 +5
2611 22n
2610 33µ 16V

3817 3828

X-TAL OSCILLATOR
TO CIRCUIT
XSYS 9
X-IN 11
X-OUT 10
Vss 12
TEST 13
Vdd 24
3651 220k
1601 11.2896MHz
2630 47p
2631 47p
2633 22n
3650
2632 33µ 16V
+5

RS.05396
32–839

LOADING CONTROL DIAGRAM



44 346 C11

CS 19 935

DECODING DIAGRAM

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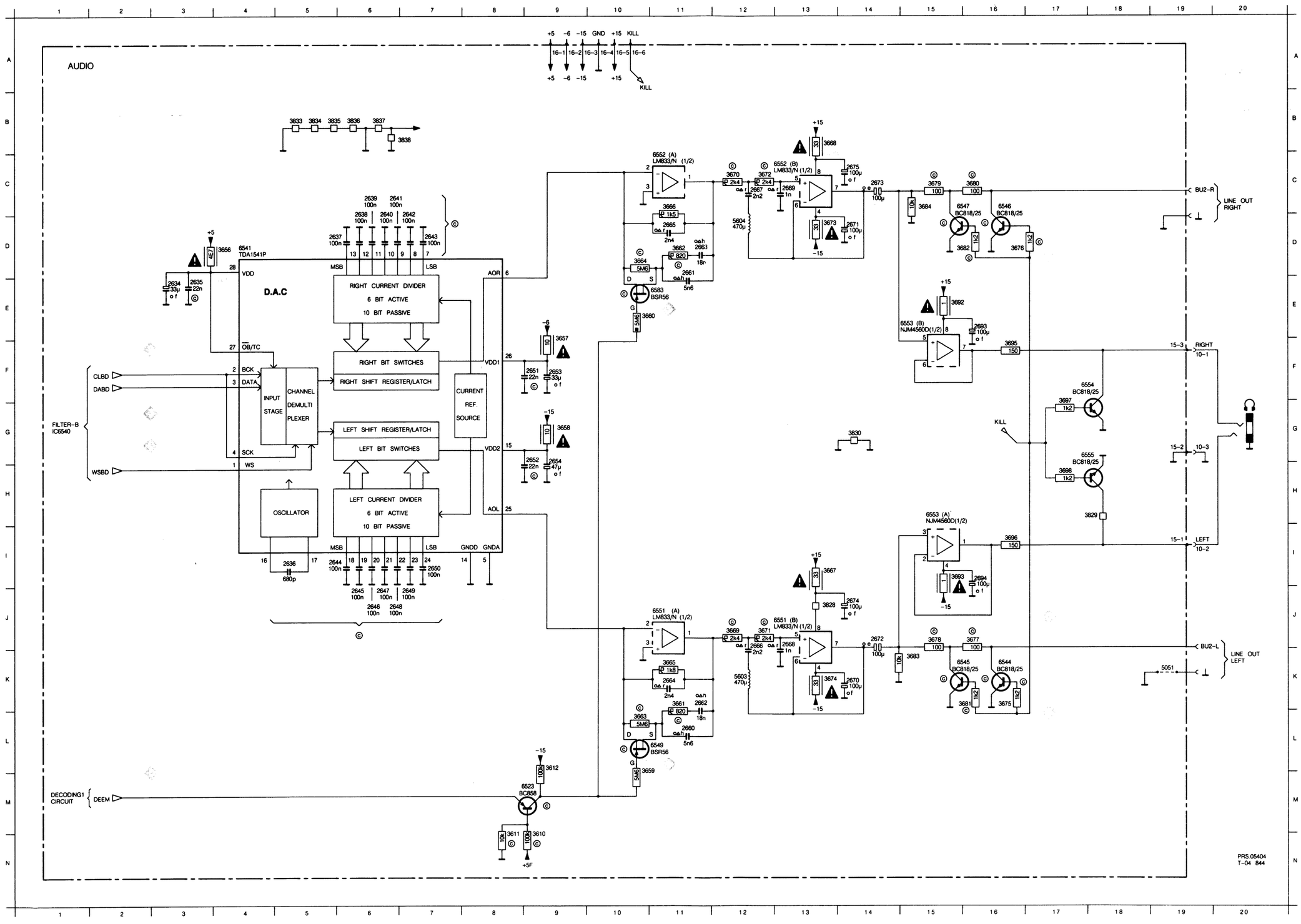
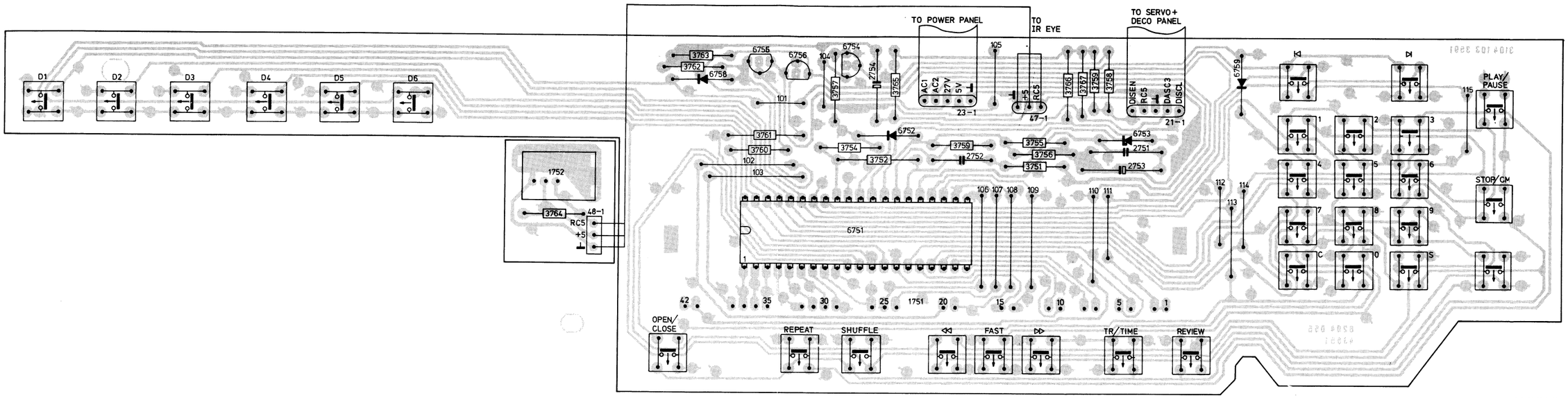
2635	E 3	2639	C 6	2643	D 7	2647	J 6	2651	F 9	2660	L11	2664	K11	2668	J13	2672	J14	2693	E16	3612	L 9	3659	L11	3663	L10	3667	I 13	3671	J12	3675	K16	3679	C15	3683	K15	3695	F16	3828	J13	3834	B 5	3838	B 7	6523	M 9	6546	C16	6551	J11	6553	H15		
2636	I 5	2640	C 6	2644	I 6	2648	J 6	2652	G 9	2661	D11	2665	D11	2669	C13	2673	C14	2694	I 16	3656	D 4	3660	E11	3664	D10	3668	B13	3672	C12	3676	D16	3680	C16	3684	C15	3696	I 16	3829	H18	3835	B 5	5051	K19	6541	D 4	6547	C16	6552	C13	6554	F18		
2637	D 6	2641	C 6	2645	J 6	2649	J 7	2653	F 9	2662	K11	2666	J12	2670	K14	2674	J14	3610	N 9	3657	E 9	3661	K11	3665	K11	3669	J12	3673	D13	3677	J16	3681	K16	3692	E15	3697	G17	3830	G14	3836	B 6	5603	K12	6544	K16	6549	L11	6552	C16	6555	G18		

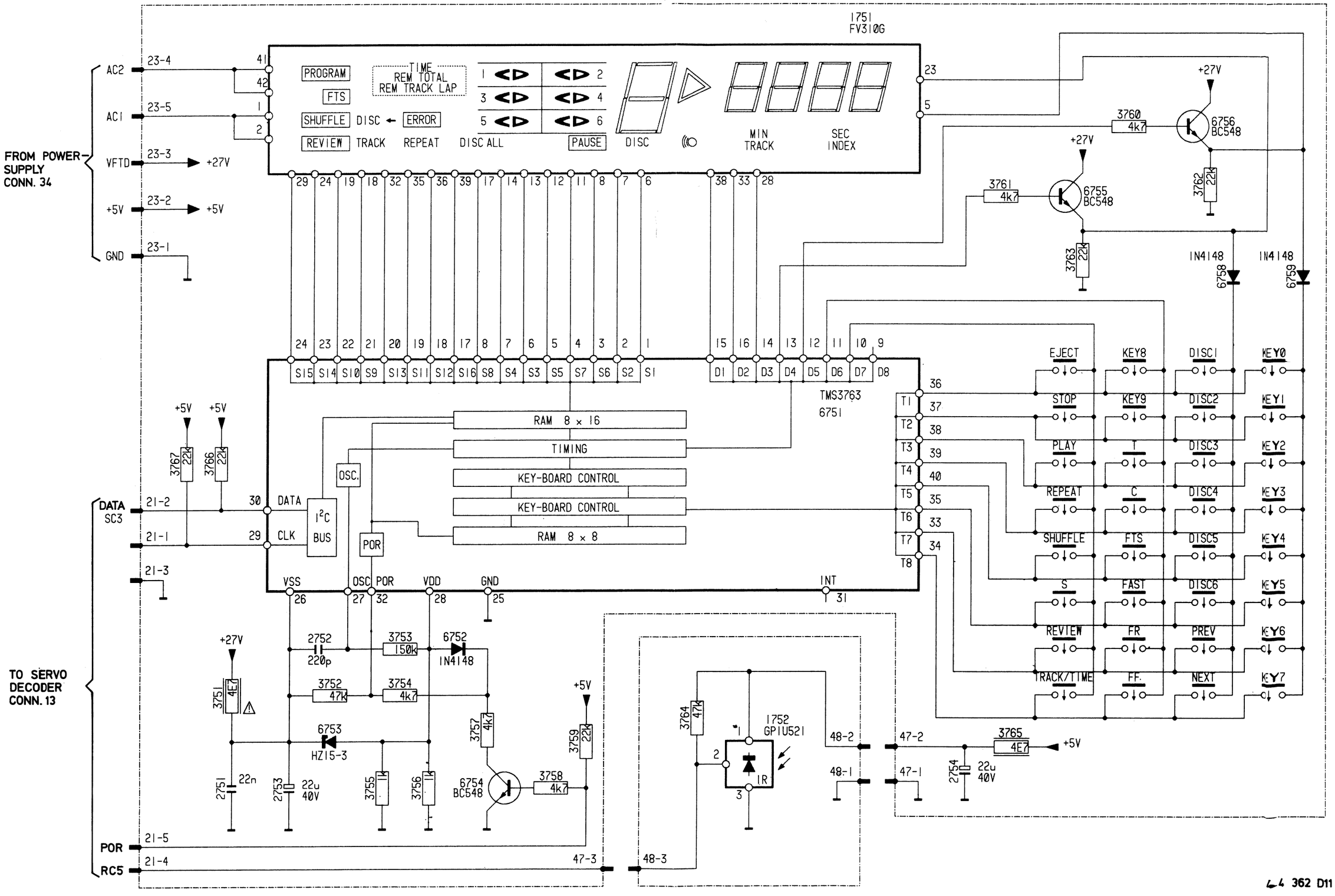


CONTROL AND DISPLAY PANEL

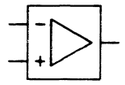
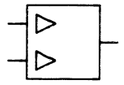
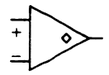
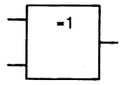
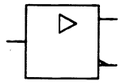
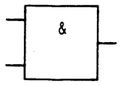
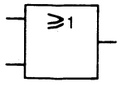
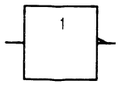


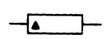
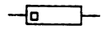
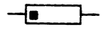
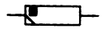
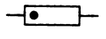
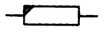
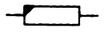
CS 19 937

CONTROL AND DISPLAY DIAGRAM



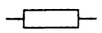
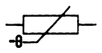
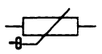
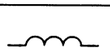
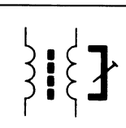
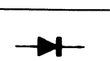
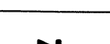
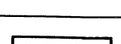
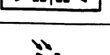
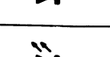
4 362 D11

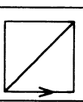
SYMBOL	DESCRIPTION
	Operational amplifier
	Differential amplifier
	Splitter
	Operational amplifier with open output
	Exclusive OR gate
	True/complement amplifier with high input
	Flip Flop
	AND gate
	OR gate
	Inverter with high input

	0.2W (CR 16) ≤ 220kΩ 5%, > 270kΩ 10%
	0.33W (CR 25) ≤ 1MΩ 5%, > 1MΩ 10%
	0.33W (SFR25) 5%
	0.25W (VR 25) ≤ 10MΩ 5%, > 10MΩ 10%
	0.5W (CR 37) ≤ 1MΩ 5%, > 1MΩ 10%
	0.67W (CR 52) 5%
	1.15W (CR 68) 5%
	Ceramic plate
	Polyester flat foil
	Polyester mepolesco
	Mylar (Polyester flat foil small sized)
	Micropoco
	Tubular ceramic (body colour pink or yellow/green)
	Miniature single elco
	Subminiature tantalum

*
a=2,5V
b=4V
c=6,3V
d=10V
e=16V
f=25V
g=40V
h=63V
i=100V
j=125V
l=125V
m=150V
n=160V
q=200V
r=250V
s=300V
t=350V
u=400V
v=500V
w=630V
x=1000V
A=1.6V
B=6V
C=12V
D=15V
E=20V
F=35V
G=50V
H=75V
I=80V

MDA.00084
T32-735

SYMBOL	DESCRIPTION
	Capacitor, general
	Electrolytic capacitor (+ and − may be omitted)
	Bipolar electrolytic capacitor (+ may be omitted)
	Resistor, general
	N.T.C. resistor
	P.T.C. resistor
	Voltage divider with preset adjustment
	Chip jumper
	Pin contact
	Bus contact
	Coil, self-induction
	Transformer with electrically poor conducting core and adjustable pre-magnetization
	Diode
	Zener diode
	Stabistor
	Double variable capacity diode (in one envelope)
	Photo conductive diode
	L.E.D.

SYMBOL	DESCRIPTION
	Transistor (N.P.N.)
	Transistor (P.N.P.)
	Direct current (DC)
	Alternating current (AC)
	Earth (functional)
	Frame or chassis connection
	Direction in which AC voltages are passed on (optional present)
	Interrupted line
	Not-connected crossing lines
	Connected lines
	Cable tree with lead-outs
	Changer, general (arrow is optional)
	Voltage Controlled Oscillator
	Band-pass filter
	Phase changing network
	Delay element
	Amplifier, general

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ELECTRICAL PARTSLIST

MC7915CT	4822 130 41899
TY40408=MC7805CT selected	4822 209 71579
MC79L06	4822 209 82056
MC7912CT	5322 209 85913
TDA8808T/C3	4822 209 73234
TDA8809T/C2	4822 209 73235
TCA0372DP2	4822 209 72587
SAA7210	4822 209 71001
µPD41416	4822 209 70422
TDA1541	4822 209 72544
NJM4560D	4822 209 83274
PCF84C85P/016	4822 209 60005
MAB8441P/T158	4822 209 60039
BA6109	4822 209 82059
LM833N	4822 209 83163
PCF2111P	5322 209 70185
MC78M15CT	4822 209 80808
NJM4556D	4822 209 82362
HEF40160BP	4822 209 11233
SAA7220	4822 209 72545
X2816BP	4822 209 72102
TMS3763CNL	4822 209 73149

BC328	4822 130 44104
BC338	4822 130 44121
BC328-16	4822 130 41023
BC548C	4822 130 44196
BC558	4822 130 44197
BC818	4822 130 42675
BC848 Chip	5322 130 41981
BC858 Chip	5322 130 42012
BD135	4822 130 40823
BF550	4822 130 42131
BC337	4822 130 40855
BC338-25	4822 130 40958
BC548B	4822 130 40937
BC808-25	5322 130 42048
BC818-25	4822 130 42696
BC848B chip	5322 130 41982
BSR56	4822 130 42633

680pF	50V	4822 122 31381
1nF	50V	4822 122 31746
1n2	50V	4822 121 51309
1n8	50V	4822 121 51311
2n2	50V	4822 121 51325
3n3	400V	4822 122 40327
3n9	50V	4822 121 51313
6n8	50V	4822 121 51093
10nF	25V	4822 122 10177
15nF	50V	4822 121 51315
22nF	16V	4822 122 10166
33nF	63V	4822 122 31848
47nF	100V	5322 121 42491
220nF	63V	4822 121 42245
330nF	63V	4822 121 42661
470nF	100V	4822 121 51252
56nF	50V	4822 122 32183
5n6	160V	4822 121 51361
18nF	63V	4822 121 51225
2n4	250V	4822 121 51111
1nF	400V	4822 121 43066

100nF	63V		4822 122 33156
220pF	50V		4822 122 10172
22µF	40V		5322 124 21643
220nF	63V		4822 121 42245
1nF	50V		4822 121 51324
2n7	50V		4822 121 51312
4n7	50V		4822 121 51314
27nF	50V		4822 121 42888
1µ5 bip	50V		4822 124 41601
2µ2	16V		4822 124 41593
4µ7	50V		4822 124 41576
6µ8	50V		4822 124 41578
8µ2	63V		4822 121 51321
33µF	16V		4822 124 40272
47µF	25V		4822 124 41527
100µF	25V		4822 124 41528
220µF	16V		4822 124 40196
330µF	35V		4822 124 41594
6800µF	16V		4822 124 41591
1000µF	16V		4822 124 41571
470µF	35V		4822 124 41573
22µF	50V		4822 124 41596
470µF	50V		4822 124 41614
10µF	40V		4822 124 20708
47µF	10V		4822 124 20678
3µ3	63V		4822 124 20725
100µF	10V		5322 124 21762
100µF	16V	Bip	4822 124 22339

1N4002	5322 130 30684
1N4148	4822 130 30621
BAT85	4822 130 31983
BA314	4822 130 30879
HZ3B2	4822 130 32831
HZ4B2	4822 130 32843
HZ5B1	4822 130 32986
HZ6A3	4822 130 32697
HZ7C2	4822 130 32862
HZ7A3	4822 130 33523
HZ9C1	4822 209 70289
BAW62	4822 130 30613
BZV85-C7V5	5322 130 32586
HZ9A2	4822 130 33294
BZX55-C4V7	4822 130 80275
BZX55-C12	4822 130 80277
BZX55-C3V9	4822 130 33637
BZX55-C15	4822 130 81086

10.000 MHz	4822 242 71378
11289.6 kHz	4822 242 71644

4.7 µ	4822 157 53139
470 µ	4822 157 53141

1R	0.33 W	4822 111 30483
4R7	0.33 W	4822 111 30499
4R7	0.6 W	4822 116 52858
10R	0.33 W	4822 111 30508
12R	0.33 W	4822 111 30511
18R	0.33 W	4822 111 30515
22E	0.33 W	4822 111 30517
33E	0.33 W	4822 111 30522
220R	0.33 W	4822 111 30544
430R	0.5 W	4822 116 52423

ELECTRICAL PARTSLIST

680R	0.5 W	4822 116 52431
750R	0.5 W	4822 116 52432
1K	0.5 W	4822 116 52391
2K2	0.5 W	4822 116 52408
2K7	0.5 W	4822 116 52413
3K3	0.5 W	4822 116 51417
3K9	0.5 W	4822 116 52422
4K7	0.5 W	4822 116 52426
150K	0.5 W	4822 116 52501
470K	0.5 W	4822 116 52527
180K	0.5 W	4822 116 52505
1K2	0.5 W	4822 116 52395
2K4	0.6 W	4822 116 52851
5K6	0.5 W	4822 116 52438
6K8	0.5 W	4822 116 52441
10K	0.5 W	4822 116 52452
22K	0.5 W	4822 116 52463
33K	0.5 W	4822 116 52467
47K	0.5 W	4822 116 52472
150K	0.5 W	4822 116 52501
470K	0.5 W	4822 116 52527
180K	0.5 W	4822 116 52505
1K2	0.5 W	4822 116 52395
2K4	0.6 W	4822 116 52851
180K	0.5 W	4822 116 52505
1M	0.5 W	4822 116 52493
5M6	0.5 W	4822 116 52533
100R	0.5 W	4822 116 52389
18K	0.5 W	4822 116 52461
1K2	0.5 W	4822 116 52395
150R	0.5 W	4822 116 52398

10K	log dual	4822 100 30061
4K7	0.05 W	4822 101 10685
22K	0.05 W	4822 100 20522

MISCELLANEOUS

Display	4822 130 90606
Trafo/00R/05R mains	4822 146 30739
Trafo/47R mains	4822 146 30737
Trafo digout	4822 148 80281
Switches keyboard	4,3 mm 4822 276 12465
	9,5 mm 4822 276 12276
Phone socket	4822 267 30631
Cinch socket 4p	4822 267 40766
Cinch socket 2p	4822 267 30631
Fuse 315 mA	4822 253 30014
Fuse 400 mA	4822 253 54043
Switch SK11-15	4822 271 30628
Power on switch	4822 276 11309
Remote eye	4822 214 51723
Switch SK5	4822 276 12491
Opto-coupler GP-1S04	4822 130 32114

Transformer fuse

EU	4822 252 20017
USA	4822 252 20108

© Chips 50 V NP0 S1206			© Chips 0,125 W S1206			© Chips 0,125 W S1206			1U
1 pF	5%	4822 122 32479	4,7 E	5%	5322 111 90376	6,8 k	2%	4822 111 90544	
1,2 pF	5%	4822 122 33013	5,1 E	5%	4822 111 90393	7,5 k	2%	4822 111 90276	
1,5 pF	5%	4822 122 31792	5,6 E	5%	4822 111 90394	8,2 k	2%	5322 111 90118	
1,8 pF	5%	4822 122 32087	6,2 E	5%	4822 111 90395	9,1 k	2%	4822 111 90373	
2,2 pF	5%	4822 122 32425	6,8 E	5%	4822 111 90254	10 k	2%	4822 111 90249	
3,3 pF	5%	4822 122 32079	7,5 E	5%	4822 111 90396	11 k	2%	4822 111 90337	
3,9 pF	5%	4822 122 32081	8,2 E	5%	4822 111 90397	12 k	2%	4822 111 90253	
4,7 pF	5%	4822 122 32082	9,1 E	5%	4822 111 90398	13 k	2%	4822 111 90509	
5,6 pF	5%	4822 122 32506	10 E	2%	5322 111 90095	15 k	2%	4822 111 90196	
6,8 pF	5%	4822 122 32507	11 E	2%	4822 111 90338	16 k	2%	4822 111 90346	
8,2 pF	5%	4822 122 32083	12 E	2%	4822 111 90341	18 k	2%	4822 111 90238	
10 pF	5%	4822 122 31971	13 E	2%	4822 111 90343	20 k	2%	4822 111 90349	
12 pF	5%	4822 122 32139	15 E	2%	4822 111 90344	22 k	2%	4822 111 90251	
15 pF	5%	4822 122 32504	16 E	2%	4822 111 90347	24 k	2%	4822 111 90512	
18 pF	5%	4822 122 31769	18 E	2%	5322 111 90139	27 k	2%	4822 111 90542	
22 pF	10%	4822 122 31837	20 E	2%	4822 111 90352	30 k	2%	4822 111 90216	
27 pF	5%	4822 122 31966	22 E	2%	4822 111 90186	33 k	2%	5322 111 90267	
33 pF	5%	4822 122 31756	24 E	2%	4822 111 90355	36 k	2%	4822 111 90514	
39 pF	5%	4822 122 31972	27 E	2%	5322 111 90105	39 k	2%	5322 111 90108	
47 pF	5%	4822 122 31772	30 E	2%	4822 111 90356	43 k	2%	4822 111 90363	
56 pF	5%	4822 122 31774	33 E	2%	4822 111 90357	47 k	2%	4822 111 90543	
68 pF	5%	4822 122 31961	36 E	2%	4822 111 90359	51 k	2%	5322 111 90274	
82 pF	10%	4822 122 31839	39 E	2%	4822 111 90361	56 k	2%	4822 111 90573	
100 pF	5%	4822 122 31765	43 E	2%	5322 116 90125	62 k	2%	5322 111 90275	
120 pF	5%	4822 122 31766	47 E	2%	4822 111 90217	68 k	2%	4822 111 90202	
150 pF	5%	4822 122 31767	51 E	2%	4822 111 90365	75 k	2%	4822 111 90574	
180 pF	2%	4822 122 31794	56 E	2%	4822 111 90239	82 k	2%	4822 111 90575	
220 pF	5%	4822 122 31965	62 E	2%	4822 111 90367	91 k	2%	5322 111 90277	
270 pF	5%	4822 122 32142	68 E	2%	4822 111 90203	100 k	2%	4822 111 90214	
330 pF	10%	4822 122 31642	75 E	2%	4822 111 90371	110 k	2%	5322 111 90269	
390 pF	5%	4822 122 31771	82 E	2%	4822 111 90124	120 k	2%	4822 111 90568	
470 pF	5%	4822 122 31727	91 E	2%	4822 111 90375	130 k	2%	4822 111 90511	
560 pF	5%	4822 122 31773	100 E	2%	5322 111 90091	150 k	2%	5322 111 90099	
680 pF	5%	4822 122 31775	110 E	2%	4822 111 90335	160 k	2%	5322 111 90264	
820 pF	5%	4822 122 31974	120 E	2%	4822 111 90339	180 k	2%	4822 111 90565	
1 nF	10%	5322 122 31647	130 E	2%	4822 111 90164	200 k	2%	4822 111 90351	
1,2 nF	5%	4822 122 31807	150 E	2%	5322 111 90098	220 k	2%	4822 111 90197	
1,5 nF	10%	4822 122 31781	160 E	2%	4822 111 90345	240 k	2%	4822 111 90215	
1,8 nF	10%	4822 122 32153	180 E	2%	5322 111 90242	270 k	2%	4822 111 90302	
2,2 nF	10%	4822 122 31644	200 E	2%	4822 111 90348	300 k	2%	5322 111 90266	
2,7 nF	10%	4822 122 31783	220 E	2%	4822 111 90178	330 k	2%	4822 111 90513	
3,3 nF	10%	4822 122 31969	240 E	2%	4822 111 90353	360 k	2%	4822 111 90515	
3,9 nF	10%	4822 122 32566	270 E	2%	4822 111 90154	390 k	2%	4822 111 90182	
4,7 nF	10%	4822 122 31784	300 E	2%	4822 111 90156	430 k	2%	4822 111 90168	
5,6 nF	10%	4822 122 31916	330 E	2%	5322 111 90106	470 k	2%	4822 111 90161	
6,8 nF	10%	4822 122 31976	360 E	1%	4822 111 90288	510 k	2%	4822 111 90364	
10 nF	10%	4822 122 31728	360 E	2%	4822 111 90358	560 k	2%	4822 111 90169	
12 nF	10%	5322 122 31648	390 E	2%	5322 111 90138	620 k	2%	4822 111 90213	
15 nF	10%	4822 122 31782	430 E	2%	4822 111 90362	680 k	2%	4822 111 90368	
18 nF	10%	4822 122 31759	470 E	2%	5322 111 90109	750 k	2%	4822 111 90369	
22 nF	10%	4822 122 31797	510 E	2%	4822 111 90245	820 k	2%	4822 111 90205	
27 nF	10%	4822 122 32541	560 E	2%	5322 111 90113	910 k	2%	4822 111 90374	
33 nF	10%	4822 122 31981	620 E	2%	4822 111 90366	1 M	2%	4822 111 90252	
47 nF	10%	4822 122 32542	680 E	2%	4822 111 90162	1,1 M	5%	4822 111 90408	
56 nF	10%	4822 122 32183	750 E	2%	5322 111 90306	1,2 M	5%	4822 111 90409	
100 nF	10%	4822 122 31947	820 E	2%	4822 111 90171	1,3 M	5%	4822 111 90411	
180 nF	10%	4822 122 32915	910 E	2%	4822 111 90372	1,5 M	5%	4822 111 90412	
220 nF	20%	4822 122 32715	1 k	2%	5322 111 90092	1,6 M	5%	4822 111 90413	
			1,1 k	2%	4822 111 90336	1,8 M	5%	4822 111 90414	
© Chips 0,125 W S1206 NP0			1,2 k	2%	5322 111 90096	2 M	5%	4822 111 90415	
			1,3 k	2%	4822 111 90244	2,2 M	5%	4822 111 90185	
0 E	jumper	4822 111 90163	1,5 k	2%	4822 111 90151	2,4 M	5%	4822 111 90416	
1 E	5%	4822 111 90184	1,6 k	2%	5322 111 90265	2,7 M	5%	4822 111 90417	
1,1 E	5%	4822 111 90377	1,8 k	2%	5322 111 90101	3 M	5%	4822 111 90418	
1,2 E	5%	4822 111 90378	2 k	2%	4822 111 90165	3,3 M	5%	4822 111 90191	
1,3 E	5%	4822 111 90379	2,2 k	2%	4822 111 90248	3,6 M	5%	4822 111 90419	
1,5 E	5%	4822 111 90381	2,4 k	2%	4822 111 90289	3,9 M	5%	4822 111 90421	
1,6 E	5%	4822 111 90382	2,7 k	2%	4822 111 90569	4,3 M	5%	4822 111 90422	
1,8 E	5%	4822 111 90383	3 k	2%	4822 111 90198	4,7 M	5%	4822 111 90423	
2 E	5%	4822 111 90384	3,3 k	2%	4822 111 90157	5,1 M	5%	4822 111 90424	
2,2 E	5%	5322 111 90104	3,6 k	2%	5322 111 90107	5,6 M	5%	4822 111 90425	
2,4 E	5%	4822 111 90385	3,9 k	2%	4822 111 90571	6,2 M	5%	4822 111 90426	
2,7 E	5%	4822 111 90386	4,3 k	2%	4822 111 90167	6,8 M	5%	4822 111 90235	
3 E	5%	4822 111 90387	4,7 k	2%	5322 111 90111	7,5 M	5%	4822 111 90427	
3,3 E	5%	4822 111 90388	5,1 k	2%	5322 111 90268	8,2 M	5%	4822 111 90237	
3,6 E	5%	4822 111 90389	5,6 k	2%	4822 111 90572	9,1 M	5%	4822 111 90428	
3,9 E	5%	4822 111 90391	6,2 k	2%	4822 111 90545	10M	5%	5322 111 91141	
4,3 E	5%	4822 111 90392							